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=> file reg
FILE 'REGISTRY' ENTERED AT 14:42:54 ON 02 JAN 2003
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=> d his


     FILE 'REGISTRY' ENTERED AT 12:46:57 ON 02 JAN 2003
                E DIMETHYLSULFOXIDE/CN
                E DIMETHYL SULFOXIDE/CN
L1            1 SEA "DIMETHYL SULFOXIDE"/CN
                E N-PROPANALAMIDE/CN
                E PROPANALAMIDE/CN
                E N-PROPANAL AMIDE/CN
                E PROPANAL AMIDE/CN

     FILE 'HCA' ENTERED AT 13:30:11 ON 02 JAN 2003
L2            1 SEA ?PROPANALAMID?
                D KWIC
L3            6 SEA ?PROPANAL(2A)AMID?
                D L3 1-6 KWIC

     FILE 'HCAPLUS' ENTERED AT 13:36:54 ON 02 JAN 2003
L4          574 SEA MAY C?/AU
L5       429868 SEA SEMICOND? OR SEMI(2A)(COND# OR CONDUCT?)
L6           75 SEA L4 AND L5
L7        52563 SEA L1 OR DMSO OR DIMETHYLSULFOXIDE# OR DIMETHYLSULPHOXID
                E# OR (DIME OR DI(A)(METHYL# OR ME) OR DIMETHYL#)(2A)(SUL
                FOXIDE# OR SULPHOXIDE#)
L8            1 SEA L4 AND L7
L9            0 SEA L8 AND L5
                D L8 ALL
L10       80814 SEA CMP OR POLISH?
L11           9 SEA L6 AND L10
                D L11 1-9 TI

     FILE 'REGISTRY' ENTERED AT 13:40:46 ON 02 JAN 2003
                E ANALINE/CN
                E ANILINE/CN
L12           1 SEA ANILINE/CN
                E N,N-DIMETHYLANALINE/CN
                E N,N-DIMETHYLANILINE/CN
L13           1 SEA "N,N-DIMETHYLANILINE"/CN

     FILE 'HCAPLUS' ENTERED AT 13:41:35 ON 02 JAN 2003
L14       36667 SEA L12
L15        7483 SEA L13
L16           0 SEA L6 AND L14
L17           0 SEA L6 AND L15
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L18          1 SEA L4 AND L7
L19          0 SEA L4 AND L14
L20          0 SEA L4 AND L15
               D L18 1 TI
               D L11 1-9 ALL

     FILE 'REGISTRY' ENTERED AT 13:57:09 ON 02 JAN 2003
               E SILICON/CN
L21          1 SEA SILICON/CN

     FILE 'HCA' ENTERED AT 14:01:32 ON 02 JAN 2003
L22     785226 SEA L21 OR SEMICOND? OR SEMI(2A)(COND# OR CONDUCT?) OR
               INTEGRA?(2A)CIRCUIT? OR IC OR ICS OR I(W)C OR TRANSISTOR?
                OR DIOD? OR VLSI? OR (SILICON OR SI)(2A)(SUBSTRAT? OR
               CHIP OR CHIPS OR DIE OR DIES OR BUMP? OR PAD OR PADS OR
               SURFACE? OR SUBSTRUCT? OR UNDERSTRUCT? OR WAFER? OR
               DISK? OR DISC#)
L23            QUE WAFER? OR CHIP OR CHIPS OR DIE OR DIES OR DISK? OR
               DISC#
L24      42734 SEA NONAQ# OR NONAQUEOUS? OR NONWATER? OR NONH2O OR
               NON(2A)(AQ# OR AQUEOUS? OR WATER? OR H2O)
L25        725 SEA (NONAQ# OR NONAQUEOUS? OR NONWATER? OR NONH2O OR
               NON(2A)(AQ# OR AQUEOUS? OR WATER? OR H2O))(3A)POLAR?
L26        119 SEA (NONAQ# OR NONAQUEOUS? OR NONWATER? OR NONH2O OR
               NON(2A)(AQ# OR AQUEOUS? OR WATER? OR H2O))(3A)APROTIC?
L27     317980 SEA CMP OR C(W)M(W)P OR POLISH? OR PLANAR? OR FURBISH?
               OR BURNISH? OR GRIND? OR FLAT OR FLATTEN? OR UNROUGH? OR
               NONROUGH?
L28     169824 SEA SMOOTH?
L29     150264 SEA L7 OR L12 OR L13 OR DMSO OR ?PROPANALAMID? OR
               ?PROPANAL(2A)AMID? OR ANALINE# OR ANILINE# OR DIMETHYLANA
               LINE# OR DIMETHYLANILINE# OR (DIMETHYL# OR DI(A)(ME OR
               METHYL))(2A)(ANALINE# OR ANILINE#)

     FILE 'REGISTRY' ENTERED AT 14:15:15 ON 02 JAN 2003
               E HMPA/CN
L30          1 SEA HMPA/CN
               D SCAN
               E DIMETHYLACETAMIDE/CN
L31          1 SEA DIMETHYLACETAMIDE/CN

     FILE 'HCA' ENTERED AT 14:18:19 ON 02 JAN 2003
L32      21209 SEA L30 OR L31 OR HEXAMETHYLPHOSPHORAMIDE# OR HMPA OR
               DIMETHYLACETAMIDE# OR (DIME OR DI(A)(ME OR METHYL) OR
               DIMETHYL#)(2A)ACETAMIDE# OR DMA
L33      71859 SEA L22 AND L23
L34         51 SEA L33 AND L24
L35         13 SEA L34 AND (L27 OR L28)
L36          0 SEA L35 AND (L29 OR L32)
               E AMINES/CV
L37      99623 SEA AMINES/CV
L38          2 SEA L35 AND L37
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L39         8174 SEA L22 AND L23 AND (L27 OR L28)
L40           13 SEA L39 AND L24
L41            9 SEA L39 AND L29
L42            7 SEA L39 AND L32
L43            1 SEA L39 AND (L25 OR L26)
L44        56037 SEA (L22 OR L23) AND (L27 OR L28)
L45           78 SEA L44 AND L24
L46            1 SEA L44 AND L25
L47            0 SEA L44 AND L26
L48           81 SEA L44 AND L29
L49           21 SEA L44 AND L32
L50            2 SEA L45 AND L48
L51            0 SEA L45 AND L49
L52            4 SEA L48 AND L49
L53           64 SEA L48 AND L27
L54           19 SEA L48 AND L28
L55            2 SEA L53 AND L54
L56           24 SEA L38 OR L41 OR L42 OR L43 OR L46 OR L50 OR L52 OR L55
L57           10 SEA (L35 OR L40) NOT L56
L58           11 SEA L49 NOT (L56 OR L57)
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=> file hca
FILE 'HCA' ENTERED AT 14:43:07 ON 02 JAN 2003
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=> d l56 1-24 cbib abs hitstr hitind

L56 ANSWER 1 OF 24 HCA COPYRIGHT 2003 ACS
136:310512 Thermal induced instability of thin polymer films: a study by atomic force microscopy. Gan, Daoji; Cao, Wenjing; Puat, Ng E. (School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA, 30332, USA). High Performance Polymers, 13(4), 259-267 (English) 2001. CODEN: HPPOEX. ISSN: 0954-0083. Publisher: Institute of Physics Publishing.

AB Systematic studies of thin-film stabilities of random copolymers consisting of decyl methacrylate (**DMA**)/methyl methacrylate (MMA) units on a polystyrene (PS) layer tethered to **silicon wafer** have been carried out by at. force microscopy (AFM) as functions of mol. wt. and chem. compn. Upon annealing at an elevated temp. above the glass transition temp. (Tg), the initially **flat** polymer films break up into small holes, and finally form macroscopic droplets. The tethered PS layer was found to be dense enough to inhibit penetration of the copolymers into the lower layer during the annealing process. AFM studies at an early stage showed that the velocity of the hole growth was dependent upon both the mol. wts. and chem. compns. of the copolymers. However, the equil. contact angles of the copolymer droplets formed on the PS

layer were more dependent on the chem. compns. than on the mol. wts.
IT **7440-21-3**, Silicon, miscellaneous
(AFM study of thermal induced instability of methacrylate copolymer film on polystyrene layer tethered to **silicon wafer**)
RN 7440-21-3 HCA
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

CC 37-5 (Plastics Manufacture and Processing)
IT Annealing
Glass transition temperature
(AFM study of thermal induced instability of methacrylate copolymer film on polystyrene layer tethered to **silicon wafer**)
IT **7440-21-3**, Silicon, miscellaneous 9003-53-6D, Polystyrene, reaction products with (chloromethyl)phenyltrimethoxysilane 24413-04-5D, p-(Chloromethyl)phenyltrimethoxysilane, reaction products with polystyrene
(AFM study of thermal induced instability of methacrylate copolymer film on polystyrene layer tethered to **silicon wafer**)
IT 56279-65-3, Decyl methacrylate-methyl methacrylate copolymer
(AFM study of thermal induced instability of methacrylate copolymer film on polystyrene layer tethered to **silicon wafer**)

X L56 ANSWER 2 OF 24 HCA COPYRIGHT 2003 ACS
136:271639 Chemical mechanical **polishing** stopper film, process for producing the same, and method of chemical mechanical **polishing**. Nishikawa, Michinori; Okada, Takashi; Yamada, Kinji (JSR Corporation, Japan). Eur. Pat. Appl. EP 1188807 A2 20020320 35 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2001-120403 20010827. PRIORITY: JP 2000-257536 20000828.
AB A chem. mech. **polishing** stopper film comprises .gtoreq.1 org. polymer, said film having a dielec. const. of .ltoreq.4 such as polyarylenes, arom. polyethers, and polyacetylenes. A typical polymer was manufd. by 16.7 g 9,9-bis(methylsulfonyloxy)fluorene 20 h at 70.degree. with 10.8 g 2,4-dichlorotoluene in N,N-**dimethylacetamide**-THF mixt. in the presence of NaI, NiCl2, Ph3P, and Zn powder (activated with HOAc) under Ar.
IT **7440-21-3**, **Silicon**, processes
(**wafers**; chem. mech. **polishing** stopper films based on polyarylenes or arom. polyethers or polyacetylenes)
RN 7440-21-3 HCA
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

IC ICM C09D171-00
ICS C08G065-40; H01L021-32; B24B037-04
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 38, 66
ST polyarylene chem mech **polishing** stopper film; polyacetylene chem mech **polishing** stopper film; bismethylsulfonyloxyfluorene dichlorotoluene copolymer manuf chem mech **polishing** stopper film; arom polyether chem mech **polishing** stopper film
IT Polyethers, uses
(arom., cardo; chem. mech. **polishing** stopper films based on polyarylenes or arom. polyethers or polyacetylenes)
IT Polyethers, uses
(arom.; chem. mech. **polishing** stopper films based on polyarylenes or arom. polyethers or polyacetylenes)
IT **Semiconductor** device fabrication
(chem. mech. **polishing** stopper films based on polyarylenes or arom. polyethers or polyacetylenes)
IT Polyacetylenes, uses
(chem. mech. **polishing** stopper films based on polyarylenes or arom. polyethers or polyacetylenes)
IT **Polishing**
(chem.-mech.; chem. mech. **polishing** stopper films based on polyarylenes or arom. polyethers or polyacetylenes)
IT Polyketones
(polyether-, arom., cardo; chem. mech. **polishing** stopper films based on polyarylenes or arom. polyethers or polyacetylenes)
IT Cardo polymers
(polyether-polyketones, arom.; chem. mech. **polishing** stopper films based on polyarylenes or arom. polyethers or polyacetylenes)
IT Cardo polymers
(polyethers, arom.; chem. mech. **polishing** stopper films based on polyarylenes or arom. polyethers or polyacetylenes)
IT Polyethers, uses
(polyketone-, arom., cardo; chem. mech. **polishing** stopper films based on polyarylenes or arom. polyethers or polyacetylenes)
IT 349672-97-5P, 9,9-Bis(4-hydroxyphenyl)fluorene-9,9-bis(4-hydroxy-3-methylphenyl)fluorene-4,4'-difluorobenzophenone copolymer 404823-96-7P, 9,9-Bis(methylsulfonyloxy)fluorene-2,4-dichlorotoluene copolymer 404892-84-8P
(chem. mech. **polishing** stopper films based on polyarylenes or arom. polyethers or polyacetylenes)
IT **7440-21-3**, **Silicon**, processes
(**wafers**; chem. mech. **polishing** stopper films based on polyarylenes or arom. polyethers or polyacetylenes)

L56 ANSWER 3 OF 24 HCA COPYRIGHT 2003 ACS
135:100981 Diamond slurry for chemical-mechanical **polishing** of **semiconductor wafers**. Li, Yuzhuo; Cerutti, David Bruce; Buckley, Donald Joseph, Jr.; Tyre, Earl Royce, Jr.; Keleher, Jason J.; Uriarte, Richard J.; Horkay, Ferenc (General Electric Company, USA). U.S. US 6258721 B1 20010710, 7 pp. (English). CODEN: USXXAM. APPLICATION: US 1999-472104 19991227.

AB The multistage process for the chem.-mech. **planarization** (**CMP**) of Cu commences with forming a primary aq. or **nonaq**. (e.g., using alcs. and ketones as **nonaq**. carriers) slurry from (i) between .apprx.0 and 7 wt.% of an oxidizer, (ii) between 0 and 7 wt.% of a chelating agent, (iii) between .apprx.0 and 5 wt.% of a surfactant, (iv) between .apprx.0.001 and 5 wt.% diamond particles having an av. particle size not substantially .gtorsim.0.4 .mu.m, and (v) an amt. of a pH adjustment agent so that the aq. slurry has a pH of between .apprx.3 and 10, and advantageously .apprx.5. The Cu of the **semiconductor wafer** then is subjected to **CMP** using the primary aq. slurry and then is subjected to a cleaning operation. Next, a secondary aq. slurry from (i) between .apprx.0 and 5 wt.% of an a hydroxylamine compd., (ii) between .apprx.0 and 7 wt.% of a chelating agent, (iii) between .apprx.0 and 5 wt.% of a surfactant, (iv) between .apprx.0.001 and 5 wt.% diamond particles having an av. particle size not substantially .gtorsim.0.4 .mu., and (v) an amt. of a pH adjustment agent so that the aq. slurry has a pH of between .apprx.4 and 10, and advantageously .apprx.8.5 pH. The **semiconductor wafer** then is subjected to **CMP** using said secondary aq. slurry. Thereafter, the **semiconductor wafer** again is subjected to a cleaning operation.

IC ICM H01L021-302
ICS H01L021-461

NCL 438693000

CC 76-3 (Electric Phenomena)
Section cross-reference(s): 66

ST diamond slurry chem mech **polishing**

IT **Polishing**
(chem.-mech.; diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)

IT Slurries
(diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)

IT Carboxylic acids, uses
(dicarboxylic, aryl; in diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)

IT Chelating agents
Oxidizing agents
Surfactants
(in diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)

IT Alcohols, processes

Ketones, processes
(in diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)

IT **Amines, uses**
Amino acids, uses
Polyoxyalkylenes, uses
Sulfates, uses
(in diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)

IT 7782-40-3, Diamond, uses
(diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)

IT 7440-50-8, Copper, processes
(diamond slurry for chem.-mech. **polishing** of **semiconductor wafers** with)

IT 7440-25-7, Tantalum, uses
(diamond slurry for chem.-mech. **polishing** of **semiconductor wafers** with)

IT 1344-28-1, Alumina, processes 7803-49-8, Hydroxylamine, processes
(in diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)

IT 56-40-6, Glycine, uses 5470-11-1, Hydroxylamine hydrochloride
7631-86-9, Silica, uses 7722-84-1, Hydrogen peroxide, uses
9002-89-5, Polyvinylalcohol 9004-34-6, Cellulose, uses
25322-68-3, Polyethylene oxide 69364-63-2, Arlasolve 200L
(in diamond slurry for chem.-mech. **polishing** of **semiconductor wafers**)

L56 ANSWER 4 OF 24 HCA COPYRIGHT 2003 ACS

135:13072 Diamond slurry for chemical-mechanical **planarization** of **semiconductor wafers**. Li, Yuzhuo; Cerutti, David Bruce; Buckley, Donald Joseph, Jr.; Tyre, Earl Royce, Jr.; Keleher, Jason J.; Uriarte, Richard J.; Horkay, Ferenc (General Electric Company, USA). U.S. US 6242351 B1 20010605, 8 pp., Cont.-in-part of U.S. Ser. No. 472,104 (English). CODEN: USXXAM. APPLICATION: US 2000-591189 20000608. PRIORITY: US 1999-472104 19991227.

AB The multistage process for the chem.-mech. **planarization** (**CMP**) of Cu commences with forming a primary aq. or **nonaq**. (e.g., using alcs. and ketones as **nonaq**. carriers) slurry from (i) between .apprx.0 and 7 wt.% of an oxidizer, (ii) between 0-7 wt.% of .gtoreq.1 complexing agent or a passivating agent, (iii) between .apprx.0-5 wt.% of a surfactant, (iv) between .apprx.0.001-5 wt.% diamond particles having an av. particle size not substantially .gtorsim.0.4 .mu.m, and (v) an amt. of a pH adjustment agent so that the aq. slurry has a pH of between .apprx.3 and 10, and advantageously .apprx.5. The Cu of the **semiconductor wafer** then is subjected to **CMP** using the primary aq. slurry and then is subjected to a cleaning operation. Next, a secondary aq. slurry from (i) between .apprx.0-7 wt.% of one or more complexing agents or a passivating agent, (ii) between .apprx.0-5 wt.% of a surfactant, (iii) between

.apprx.0.001-5 wt.% diamond particles having an av. particle size not substantially .gtorsim.0.4 .mu.m, and (iv) an amt. of a pH adjustment agent so that the aq. slurry has a pH of between .apprx.4 and 10, and advantageously .apprx.8.5 pH. The **semiconductor wafer** then is subjected to **CMP** using the secondary aq. slurry. Thereafter, the **semiconductor wafer** again is subjected to a cleaning operation.

IC ICM H01L021-302
ICS H01L021-461

NCL 438690000

CC 76-3 (Electric Phenomena)

ST diamond slurry chem mech **polishing semiconductor** material

IT **Polishing**
(chem.-mech.; diamond slurry for chem.-mech. **planarization** of **semiconductor wafers**
)

IT Carboxylic acids, processes
(complexing agent; diamond slurry for chem.-mech. **planarization** of **semiconductor wafers**
)

IT **Amines, processes**
(diamines, complexing agent; diamond slurry for chem.-mech. **planarization** of **semiconductor wafers**
)

IT Abrasives
Semiconductor materials
Slurries
Surfactants
(diamond slurry for chem.-mech. **planarization** of **semiconductor wafers**)

IT **Amines, processes**
Glycols, processes
Humic acids
Iodides, processes
(hydroxyl radical quenching agent; diamond slurry for chem.-mech. **planarization** of **semiconductor wafers**
)

IT Heterocyclic compounds
(nitrogen, five-membered, passivating agent; diamond slurry for chem.-mech. **planarization** of **semiconductor wafers**)

IT Polyoxyalkylenes, processes
Quaternary ammonium compounds, processes
Sulfates, processes
(surfactant; diamond slurry for chem.-mech. **planarization** of **semiconductor wafers**)

IT **Amines, processes**
(triamines, complexing agent; diamond slurry for chem.-mech. **planarization** of **semiconductor wafers**
)

IT 67-63-0, 2-Propanol, processes 103-33-3, Azobenzene 592-57-4,

1,3-Cyclohexadiene 91825-55-7, Tin hydride
(hydroxyl radical quenching agent; diamond slurry for chem.-mech. **planarization** of **semiconductor wafers**
)

IT 95-14-7, 1H-Benzotriazole
(passivating agent; diamond slurry for chem.-mech. **planarization** of **semiconductor wafers**
)

IT 56-40-6, Glycine, processes 1344-28-1, Aluminum oxide (Al2O3), processes 7631-86-9, Silica, processes 7722-84-1, Hydrogen peroxide, processes 7782-40-3, Diamond, processes 69364-63-2
(**polishing** slurry; diamond slurry for chem.-mech. **planarization** of **semiconductor wafers**
)

IT 9002-89-5, Polyvinyl alcohol 9004-34-6, Cellulose, processes 25322-68-3, Polyethylene oxide
(surfactant; diamond slurry for chem.-mech. **planarization** of **semiconductor wafers**)

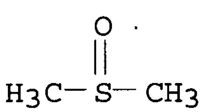
L56 ANSWER 5 OF 24 HCA COPYRIGHT 2003 ACS
134:370677 Compositions for **polishing** of **semiconductor wafers** with **smooth** surface. Lee, Gil Sung; Kim, Suk Jin; Lee, Jae Suk; Chang, Doo Won (Cheil Hapsum Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2001139935 A2 20010522, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-233384 20000801 PRIORITY: KR 1999-50159 19991112.

AB The compns. contain Al2O3/SiO2-based metal oxide fine powder, deionized water and additives.

IT **67-68-5**, **DMSO**, uses
(additive; in compns. for **polishing** of **semiconductor wafers** with **smooth** surface)

DMSO

RN 67-68-5 HCA
CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



IT **7440-21-3**, **Silicon**, properties
(**semiconductor wafer**; compns. for **polishing** of **semiconductor wafers** with **smooth** surface)

RN 7440-21-3 HCA
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

IC ICM C09K003-14
ICS C09K003-14; B24B037-00; C09K013-02; C09K013-04; C09K013-06;

H01L021-304
CC 57-7 (Ceramics)
Section cross-reference(s): 76
ST **polishing** compn **semiconductor wafer**
smoothness; alumina silica **polishing** compn
IT **Polishing** materials
Semiconductor materials
(compns. for **polishing** of **semiconductor**
wafers with **smooth** surface)
IT 64-19-7, Acetic acid, uses **67-68-5, DMSO**, uses
110-15-6, Succinic acid, uses 110-16-7, Maleic acid, uses
144-62-7, Oxalic acid, uses 877-24-7, Potassium hydrogen phthalate
1310-58-3, Potassium hydroxide, uses 1336-21-6, Ammonium hydroxide
7647-01-0, Hydrochloric acid, uses 7664-38-2, Phosphoric acid,
uses 7664-39-3, Hydrofluoric acid, uses 7722-84-1, Hydrogen
peroxide, uses 7758-05-6 7778-66-7, Potassium chloride oxide
(KClO) 10588-01-9, Sodium chromate (Na2Cr2O7) 14013-86-6, Iron
nitrate (Fe(NO3)2)
(additive; in compns. for **polishing** of
semiconductor wafers with **smooth**
surface)
IT 1306-38-3, Ceria, uses 1314-23-4, Zirconia, uses 1344-28-1,
Alumina, uses 7631-86-9, Silica, uses 13463-67-7, Titania, uses
(compns. contg.; compns. for **polishing** of
semiconductor wafers with **smooth**
surface)
IT **7440-21-3, Silicon**, properties 7440-32-6,
Titanium, properties 7440-33-7, Tungsten, properties 7440-50-8,
Copper, properties 12033-62-4, Tantalum nitride 12033-89-5,
Silicon nitride, properties 25583-20-4, Titanium nitride
(**semiconductor wafer**; compns. for
polishing of **semiconductor wafers**
with **smooth** surface)

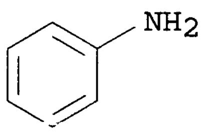
L56 ANSWER 6 OF 24 HCA
134:296791 Electroless surface polymerization of ordered conducting
polyaniline films on **aniline**-primed substrates. Wu,
C.-G.; Yeh, Y.-R.; Chen, J.-Y.; Chiou, Y.-H. (Department of
Chemistry, National Central University, Chung, 32054, Taiwan).
Polymer, 42(7), 2877-2885 (English) 2001. CODEN: POLMAG. ISSN:
0032-3861. Publisher: Elsevier Science Ltd..
AB Ordered conducting polyaniline films were obtained by electroless
surface polymn. of **aniline** mols. on C6H5NHC3H6Si(OMe)3-
modified substrates. Dense, **smooth** and strongly adhered
films with thickness in the range of 50 nm to 1 .mu.m were isolated.
The polymer films were in their conducting state and were
homogeneously doped. Complete protonating/deprotonating of
polyaniline films took only several seconds, and this process could
be repeated several times without affecting the adhesion and cond.
of the polymer films. IR, X-ray diffractometer and transmission
electron microscopy data revealed the ordering of polyaniline
chains, which have the domain size of a couple of hundred angstroms.

The room temp. cond. of the 1 .mu.m polyaniline film was 0.5 S/cm. These polymer films were very stable, their conductivities did not change even after staying in ambient atm. for 4 mo.

IT 62-53-3, **Aniline**, processes
(electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)

RN 62-53-3 HCA

CN Benzenamine (9CI) (CA INDEX NAME)



IT **7440-21-3**, **Silicon**, uses
(**wafers**, **substrates**; electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)

RN 7440-21-3 HCA

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 35, 42, 76

ST electroless surface polymn ordered conducting polyaniline film; **aniline** primed substrate electroless surface polymn

IT Conducting polymers
Doping
Glass substrates
IR spectra
Polymer morphology
Thermal conductivity
UV and visible spectra
(electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)

IT Polyanilines
(electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)

IT Coating process
(electroless; electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)

IT Polymerization
(surface; electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)

IT **62-53-3**, **Aniline**, processes
(electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)

IT 25233-30-1P, **Aniline** homopolymer
(electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)

IT 7705-08-0, Ferric chloride, uses 7727-54-0, Ammonium persulfate
(oxidant; electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)

IT 67-56-1, Methanol, uses 67-64-1, Acetone, uses 75-05-8, Acetonitrile, uses 7732-18-5, Water, uses
(solvent; electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)

IT **7440-21-3**, **Silicon**, uses
(**wafers**, **substrates**; electroless surface polymn. of ordered conducting polyaniline films on **aniline**-primed substrates and properties of prepd. films)

L56 ANSWER 7 OF 24 HCA COPYRIGHT 2003 ACS

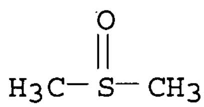
134:185968 Photoresist remover composition. Baik, Ji-Hum; Oh, Chang-Il; Lee, Sang-Dai; Yoo, Chong-Soon (Dongjin Semichem Co., Ltd., S. Korea). PCT Int. Appl. WO 2001014934 A1 20010301, 20 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 2000-KR902 20000814. PRIORITY: KR 1999-34323 19990819.

AB The invention relates to a compn. for removing photoresist from a substrate during photolithog. of **semiconductor** devices fabrication and liq. crystal display devices. A photoresist remover compn. including: 10 to 30% by wt. amine compd.; 20 to 60% by wt. glycol series solvent; 20 to 60% by wt. polar solvent; and 0.01 to 3% by wt. perfluoroalkylethylene oxide. The performance of the photoresist remover compn. in stripping the photoresist residue, which is generated by dry or wet etching, ashing or ion implantation, from a substrate is enhance, and the photoresist remover compn. is able to be **smoothly** applied over a variety of metal layers including an Al layer. Also, the photoresist remover compn. corrodes the metal layers very little.

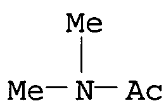
IT **67-68-5**, **DMSO**, reactions **127-19-5**, **Dimethylacetamide**
(photoresist remover compn. contg.)

RN 67-68-5 HCA

CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



RN 127-19-5 HCA
CN Acetamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



IC ICM G03F007-32
ICS G03F007-42
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
IT **67-68-5**, **DMSO**, reactions 68-12-2, DMF, reactions 78-96-6, Monoisopropanolamine 80-73-9 112-34-5, Diethylene glycol monobutyl ether **127-19-5**, **Dimethylacetamide** 141-43-5, Monoethanolamine, reactions 872-50-4, N-Methylpyrrolidone, reactions 2687-94-7, N-Octylpyrrolidone 2687-96-9, N-Dodecylpyrrolidone
(photoresist remover compn. contg.)

L56 ANSWER 8 OF 24 HCA
133:252826 Aromatic polyazomethines containing phenylquinoxaline rings. Bruma, Maria; Hamciuc, Elena; Mercer, Frank; Kopnick, Thomas; Schulz, Burkhard (Institute of Macromolecular Chemistry, Iasi, 6600, Rom.). High Performance Polymers, 12(2), 277-284 (English) 2000. CODEN: HPPOEX. ISSN: 0954-0083. Publisher: Institute of Physics Publishing.
AB New arom. polyazomethines have been synthesized by polycondensation of terephthalic dialdehyde with arom. diamines contg. preformed phenylquinoxaline rings. These polymers are easily sol. in polar aprotic solvents such as N-methylpyrrolidinone and **dimethylacetamide**, and even in less polar liqs. like THF and can be cast into thin flexible films or coatings from such solns. They show high thermal stability with the initial decompn. temp. being above 500.degree.C and glass transition temps. in the range 240-292.degree.C. The very thin polymer coatings deposited by a spin-coating technique onto **silicon wafers** show a very **smooth**, pinhole-free surface in at. force microscopy investigations. The free-standing films of 20-30 .mu.m thickness show a low dielec. const., which is in the range 3.25-3.56, which is promising for a future application as high-performance dielecs.
CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 38

L56 ANSWER 9 OF 24 HCA

130:343448 Self-Assembly and Characterization of Fullerene Monolayers on **Si**(100) **Surfaces**. Feng, Wenju; Miller, Barry (Department of Chemistry, Case Western Reserve University, Cleveland, OH, 44106-7078, USA). Langmuir, 15(9), 3152-3156 (English) 1999. CODEN: LANGD5. ISSN: 0743-7463. Publisher: American Chemical Society.

AB Self-assembly of C60 mols. on **planar** n- or p-type Si(100) has been accomplished by direct tethering onto the **Si** **surface** without using any intermediate functional hydrocarbon chain. Photoresponse has been obsd. on these monolayer modified electrodes in both aq. and nonaq. media. The p-type **Si**(100) **surface** with a bound C60 monolayer was also capable of mediating redox reactions. These C60 monolayer modified Si electrodes were very stable in both acidic aq. and **polar nonaq**. solvents. Characterization by fast atom bombardment mass spectroscopy (FAB-MS) suggests that simultaneous hydrosilylation and hydrogenation reactions accounted for the nature of the monolayer formation.

IT **7440-21-3**, Silicon, properties
(p-type, n-type; self-assembly and characterization by FAB-MS and CV of fullerene monolayers on n- and p-type **Si**(100) **surfaces**)

RN 7440-21-3 HCA

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

CC 66-4 (Surface Chemistry and Colloids)
Section cross-reference(s): 67, 72, 73, 76

IT Fast atom bombardment mass spectra
(of fullerene monolayers on SiO2/Si(100), n-type and p-type **Si**(100) **substrates**)

IT Hydrogenation
Surface reaction
(simultaneous hydrosilylation and hydrogenation reactions at **Si** H-terminated **surface** during formation of self-assembled monolayers of fullerene on n- and p-type **Si**(100) **wafers**)

IT Hydrosilylation
(simultaneous hydrosilylation and hydrogenation reactions at **Si** H-terminated **surface** during formation of self-f-assembled monolayers of fullerene on n- and p-type **Si**(100) **wafers**)

IT Self-assembled monolayers
(simultaneous hydrosilylation and hydrogenation reactions during formation of self-f-assembled monolayers of fullerene on n- and p-type **Si**(100) **surfaces**)

IT **7440-21-3**, Silicon, properties
(p-type, n-type; self-assembly and characterization by FAB-MS and

CV of fullerene monolayers on n- and p-type **Si**(100) **surfaces**)

IT 99685-96-8, [5,6]Fullerene-C60-Ih
(self-assembly and characterization by FAB-MS and CV of fullerene monolayers on n- and p-type **Si**(100) **surfaces**)

L56 ANSWER 10 OF 24 HCA COPYRIGHT 2003 ACS

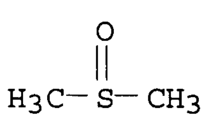
130:101085 Measuring and interpreting contact angles: a complex issue. Kwok, D. Y.; Lam, C. N. C.; Li, A.; Leung, A.; Wu, R.; Mok, E.; Neumann, A. W. (Department of Mechanical Ind. Eng., University of Toronto, 5 King's College Road, Toronto, ON, M5S 3G8, Can.). Colloids and Surfaces, A: Physicochemical and Engineering Aspects, 142(2-3), 219-235 (English) 1998. CODEN: CPEAEH. ISSN: 0927-7757. Publisher: Elsevier Science B.V..

AB Low-rate dynamic contact angles of 30 liqs. on a FC-725-coated **wafer** surface were measured by an automated axisym. drop shape anal.-profile (ADSA-P). Surprisingly, results indicate that FC-725 behaves differently in some respects from what one would expect for nonpolar surfaces: only nine liqs. yield essentially const. contact angles whereas the others show slip/stick contact angle behavior. In the worst case, the contact angle increases from .apprx.50 to 160.degree. at essentially const. three-phase contact radius. These angles should be disregarded for the interpretation in terms of surface energetics since there is no guarantee that Young's equation is applicable. If one employs a conventional goniometer-sessile drop technique, such contact angle behavior cannot be easily seen in all cases. The claim from van Oss et al. (1988) that liqs. with the same contact angles do not have the same surface tensions is misleading. If the meaningful contact angles are plotted as the liq.-vapor surface tension times cosine of the contact angle vs. the liq.-vapor surface tension, i.e., .gamma.lv cos .theta. vs. .gamma.lv, a **smooth** curve emerges. Thus, intermol. forces (or surface tension components) do not have an addnl. and independent effect on the contact angles, in good agreement with the results from other studies on nonpolar and polar polymers.

IT **67-68-5**, **DMSO**, properties
(low-rate dynamic contact angles of 30 liqs. on a FC-725-coated **wafer** surface)

RN 67-68-5 HCA

CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



IT **7440-21-3**, Silicon, uses
(low-rate dynamic contact angles of 30 liqs. on a FC-725-coated **wafer** surface)

RN 7440-21-3 HCA

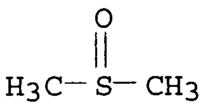
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

CC 66-4 (Surface Chemistry and Colloids)
IT Contact angle
Intermolecular force
Liquids
Surface tension
(low-rate dynamic contact angles of 30 liqs. on a FC-725-coated **wafer** surface)
IT 56-81-5, Glycerol, properties **67-68-5**, **DMSO**, properties 68-12-2, N,N-Dimethylformamide, properties 71-41-0, 1-Pentanol, properties 75-11-6, Diiodomethane 75-12-7, Formamide, properties 75-52-5, Nitromethane, properties 79-27-6, 1,1,2,2-Tetrabromoethane 90-11-9, 1-Bromonaphthalene 90-14-2, 1-Iodonaphthalene 100-55-0, 3-Pyridylcarbinol 102-76-1, Triacetin 103-36-6, Ethyl cinnamate 103-49-1, Dibenzylamine 105-56-6, Ethyl cyanoacetate 111-46-6, Diethylene glycol, properties 111-48-8, 2,2'-Thiodiethanol 112-30-1, 1-Decanol 112-40-3, Dodecane 119-36-8, Methyl salicylate 124-18-5, Decane 141-43-5, Ethanolamine, properties 493-01-6, cis-Decalin 493-02-7, trans-Decalin 544-76-3, Hexadecane 627-31-6, 1,3-Diiodopropane 7732-18-5, Water, properties 10595-09-2, 3,3'-Thiodipropanol 19398-61-9, 2,5-Dichlorotoluene
(low-rate dynamic contact angles of 30 liqs. on a FC-725-coated **wafer** surface)
IT **7440-21-3**, Silicon, uses 99576-43-9, FC-725
(low-rate dynamic contact angles of 30 liqs. on a FC-725-coated **wafer** surface)

L56 ANSWER 11 OF 24 HCA COPYRIGHT 2003 ACS
129:116711 Method for chemical-mechanical **polish** (**CMP**) **planarizing** of copper-containing conductor layers.
Useful
Zhou, Mei Sheng; Ron-Fu, Chu (Chartered Semiconductor Manufacturing Ltd., Singapore). U.S. US 5780358 A 19980714, 10 pp. (English). CODEN: USXXAM. APPLICATION: US 1996-630112 19960408.
AB A Chem.-Mech. **Polish** (**CMP**) **planarizing** method and a Chem.-Mech. **Polish** (**CMP**) slurry compn. for Chem.-Mech. **Polish** (**CMP**) **planarizing** of copper metal and copper metal alloy layers within **integrated circuits**. There is first provided a **semiconductor** substrate having formed upon its surface a patterned substrate layer. Formed within and upon the patterned substrate layer is a blanket copper metal layer or a blanket copper metal alloy layer. The blanket copper metal layer or blanket copper metal alloy layer is then **planarized** through a Chem.-Mech. **Polish** (**CMP**) **planarizing** method employing a Chem.-Mech. **Polish** (**CMP**) slurry compn. The Chem.-Mech. **Polish** (**CMP**) slurry compn. comprises a **non-aq.** coordinating solvent and a halogen radical producing specie.

IT 67-68-5, Dimethylsulfoxide, uses
(slurry for chem.-mech. polish (CMP)
planarizing of copper-contg. conductor layers contg.)
RN 67-68-5 HCA
CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



IC ICM H01L021-44
NCL 438645000
CC 76-3 (Electric Phenomena)
ST chem mech polishing conductor integrated
circuit; CMP slurry integrated
circuit conductor planarization
IT Polishing
(chem.-mech.; method for chem.-mech. polish (
CMP) planarizing of copper-contg. conductor
layers)
IT Slurries
(for chem.-mech. polish (CMP)
planarizing of copper-contg. conductor layers)
IT Electric conductors
Integrated circuits
Semiconductor device fabrication
(method for chem.-mech. polish (CMP)
planarizing of copper-contg. conductor layers)
IT Copper alloy
(method for chem.-mech. polish (CMP)
planarizing of copper-contg. conductor layers)
IT 7440-50-8, Copper, processes
(method for chem.-mech. polish (CMP)
planarizing of copper-contg. conductor layers)
IT 56-23-5, Carbon tetrachloride, uses 67-68-5,
Dimethylsulfoxide, uses 75-05-8, Acetonitrile, uses
109-99-9, Tetrahydrofuran, uses 1344-28-1, Alumina, uses
7631-86-9, Silica, uses 13463-67-7, Titania, uses
(slurry for chem.-mech. polish (CMP)
planarizing of copper-contg. conductor layers contg.)

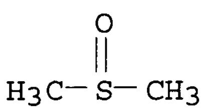
L56 ANSWER 12 OF 24 HCA COPYRIGHT 2003 ACS
128:251486 Removing residue from a semiconductor wafer
bonding pad. Peng, Tzu-min; Liaw, Yung-haw; Chu, Cheng-te; Huang,
Hsin-chieh (Taiwan Semiconductor Manufacturing Co., Ltd., Taiwan).
U.S. US 5731243 A 19980324, 9 pp. (English). CODEN: USXXAM.
APPLICATION: US 1995-523775 19950905.
AB A method for backside grinding a semiconductor
wafer and forming a contamination-free bonding pad
connection comprises forming a passivation layer over a metal layer.
A photoresist pattern is applied with an opening which defines a

bonding pad area and the passivation layer exposed in the opening is removed. Next, the photoresist is removed, but a polymer residue is often formed on the surfaces of the passivation layer surrounding the bonding pad. In a novel step, the residue is removed using an etchant contg. **DMSO** and monoethanolamine and is followed by an O plasma treatment. Next, the device side of the **wafer** is covered with a protective tape and the backside of the **wafer** is ground back. The tape is removed, revealing a contamination-free bonding pad area. A bonding connection is then made to the bonding pad.

IT **67-68-5**, **DMSO**, processes
(etching by; in removing residue from a **semiconductor wafer** bonding pad)

RN 67-68-5 HCA

CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



IC ICM H01L021-28
ICS H01L021-304; H01L021-3065

NCL 438612000

CC 76-3 (Electric Phenomena)

ST residue removal **semiconductor wafer** bonding pad

IT Electric contacts
(bond pads; removing residue from a **semiconductor wafer** bonding pad)

IT Etching
Grinding (machining)
(in removing residue from a **semiconductor wafer** bonding pad)

IT Plasma
(oxygen; in removing residue from a **semiconductor wafer** bonding pad)

IT Contamination (electronics)
(removing residue from a **semiconductor wafer** bonding pad)

IT Polymers, processes
(removing residue from a **semiconductor wafer** bonding pad)

IT Photoresists
(removing residue from a **semiconductor wafer** bonding pad after removal of)

IT **Semiconductor** device fabrication
(removing residue from a **semiconductor wafer** bonding pad in)

IT **67-68-5**, **DMSO**, processes 141-43-5, Monoethanolamine, processes
(etching by; in removing residue from a **semiconductor wafer** bonding pad)

IT 7631-86-9, Silica, processes 12033-89-5, Silicon nitride (Si3N4), processes
(passivation layer; in removing residue from a **semiconductor wafer** bonding pad)

IT 7782-44-7, Oxygen, processes
(plasma; in removing residue from a **semiconductor wafer** bonding pad)

L56 ANSWER 13 OF 24 HCA COPYRIGHT 2003 ACS

X 125:169082 Aspects of the camphor-sulfonic acid processing route of polyaniline. Abell, L.; Pomfret, S. J.; Holland, E. R.; Adams, P. N.; Monkman, A. P. (Dep. Physics, Univ. Durham, UK). Annual Technical Conference - Society of Plastics Engineers, 54th(Vol. 2), 1417-1421 (English) 1996. CODEN: ACPED4. ISSN: 0272-5223. Publisher: Society of Plastics Engineers.

AB The microstructure and carrier transport properties of high-mol. wt. polyaniline films were studied as a function of camphor-sulfonic acid (CSA) dopant level. The polyaniline was prepd. in CSA / m-cresol soln. of **aniline** hydrochloride by treatment with ammonium persulfate at -25.degree., for 10 h, followed by purifn. to obtain bulk polyaniline-CSA of wt. av. mol. wt. of 174,000, no. av. mol. wt. of 21,000 Dalton, polydispersity of 8.3, and cond. of 100 S/cm. Stretch oriented polyaniline-CSA films were obtained by solvent casting on a **polished Si wafer**
, producing a film with cond. 300 .+-. 30 S/cm. At a doping level of 30%, onset of metallic transport was obsd., and at 60% doping, films exhibit metallic transport, at room temp. and down to 135 K. The metallic conducting polymer also shows a large increase in crystallinity within the film. Stretch oriented pre-CSA doped films yielding increased room temp. cond. of 820 .+-. 40 S/cm at 100% elongation were also obtained.

CC 36-2 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 35, 76

IT Polyamines
(**aniline**-based, microstructure and metallic cond. of stretch oriented high mol. wt. polyaniline-camphorsulfonate conducting polymer)

L56 ANSWER 14 OF 24 HCA COPYRIGHT 2003 ACS

X 124:304340 Manufacture of **semiconductor** devices. Noguchi, Juichi (Toshiba Chem Prod, Japan). Jpn. Kokai Tokkyo Koho JP 08031809 A2 19960202 Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-186775 19940715.

AB The manuf. comprises these steps; forming a polyamic acid resin film on a **wafer**, and removing its thick part selectively by applying an org. solvent to form a **flat** polyamic acid resin film. The manuf. provides a uniform-thickness polyimide film in a good through-putting rate preventing crack generation.

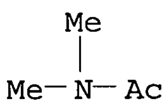
IT **7440-21-3**, Silicon, processes
(polyamic resin film on **wafer** for **semiconductor** devices)

RN 7440-21-3 HCA

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

IT **127-19-5, Dimethylacetamide**
(polyamic resin film on **wafer** for **semiconductor** devices)
RN 127-19-5 HCA
CN Acetamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



IC ICM H01L021-312
ICS H01L021-31
CC 76-3 (Electric Phenomena)
ST **semiconductor** device polyimide resin film
IT Etching
(manuf. of **semiconductor** devices)
IT Polyamic acids
(manuf. of **semiconductor** devices)
IT Polyimides, uses
(manuf. of **semiconductor** devices)
IT **Semiconductor** devices
(polyamic resin film on **wafer** for **semiconductor** devices)
IT **7440-21-3**, Silicon, processes
(polyamic resin film on **wafer** for **semiconductor** devices)
IT 176163-45-4P
(polyamic resin film on **wafer** for **semiconductor** devices)
IT 67-56-1, Methanol, processes 68-12-2, N,N-Dimethylformamide, processes **127-19-5, Dimethylacetamide**
872-50-4, N-Methyl-2-pyrrolidone, processes
(polyamic resin film on **wafer** for **semiconductor** devices)

L56 ANSWER 15 OF 24 HCA COPYRIGHT 2003 ACS
115:117775 Control of copper uptake in **silicon wafers** during chemomechanical **polishing** of **wafers** in aqueous alkaline medium. Prigge, Helene; Gerlach, Peter; Hahn, Peter; Schnegg, Anton (Wacker-Chemitronic Gesellschaft fuer Elektronik-Grundstoffe m.b.H., Germany). Ger. Offen. DE 3939661 A1 19910613, 5 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1989-3939661 19891130.

need copy

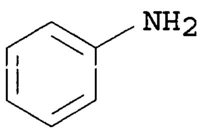
AB The Cu uptake in **Si wafers** is increased by the addn. of ligands which form **planar** Cu complexes, and the Cu uptake is decreased by the addn. of ligands which form

tetrahedral Cu complexes. The 1st complexing ligands are NH_3, monoethylamine, diethylamine, triethylamine, monomethylamine, dimethylamine, trimethylamine, pyrrolidine, $PhNH_2$, pyridine, and ethylenediamine. The 2nd complexing ligands are MeOH, EtOH, PrOH, BuOH, 1,2-propanediol, 1,2- or 2,3-butanediol, o-hydroquinone, and tartaric, lactic, or citric acid.

IT **62-53-3**, **Aniline**, uses and miscellaneous
(complexing additive, for copper uptake control in chem.-mech. **polishing** of **silicon wafers**)

RN 62-53-3 HCA

CN Benzenamine (9CI) (CA INDEX NAME)



IT **7440-21-3**, Silicon, uses and miscellaneous
(**polishing** of **wafers** of, chem.-mech., copper uptake control in, complexing additives for)

RN 7440-21-3 HCA

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

IC ICM H01L021-304
ICS C23C018-54

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76

ST copper uptake control silicon **polishing**; ammonia copper uptake silicon **polishing**; amine copper uptake silicon **polishing**; pyrrolidine copper uptake silicon **polishing**; **aniline** copper uptake silicon **polishing**; pyridine copper uptake silicon **polishing** ; alc copper uptake silicon **polishing**; diol copper uptake silicon **polishing**; hydroxycarboxylic acid copper uptake **polishing**

IT **Polishing**
(chem.-mech., of **silicon wafers**, copper uptake control in, complexing additives for)

IT 50-21-5, Lactic acid, uses and miscellaneous 57-55-6, 1,2-Propanediol, uses and miscellaneous **62-53-3**, **Aniline**, uses and miscellaneous 64-17-5, Ethanol, uses and miscellaneous 67-56-1, Methanol, uses and miscellaneous 71-23-8, Propanol, uses and miscellaneous 71-36-3, 1-Butanol, uses and miscellaneous 74-89-5, Monomethylamine, uses and miscellaneous 75-04-7, Monoethylamine, uses and miscellaneous 75-50-3, Trimethylamine, uses and miscellaneous 77-92-9, Citric acid, uses and miscellaneous 87-69-4, Tartaric acid, uses and miscellaneous 107-15-3, Ethylenediamine, uses and miscellaneous 109-89-7,

Diethylamine, uses and miscellaneous 110-86-1, Pyridine, uses and miscellaneous 120-80-9, o-Hydroquinone, uses and miscellaneous 121-44-8, Triethylamine, uses and miscellaneous 123-75-1, Pyrrolidine, uses and miscellaneous 124-40-3, Dimethylamine, uses and miscellaneous 513-85-9, 2,3-Butanediol 584-03-2, 1,2-Butanediol 7664-41-7, Ammonia, uses and miscellaneous
(complexing additive, for copper uptake control in chem.-mech. **polishing** of **silicon wafers**)

IT 7440-50-8P, Copper, preparation
(control of uptake of, in chem.-mech. **polishing** of **silicon wafers**, complexing additives for)

IT **7440-21-3**, Silicon, uses and miscellaneous
(**polishing** of **wafers** of, chem.-mech., copper uptake control in, complexing additives for)

L56 ANSWER 16 OF 24 HCA COPYRIGHT 2003 ACS

X 113:180148 Reaction selectivity enhancement under periodic-current control: the reduction of nitrobenzene on the rotating **disk** electrode. Nolen, Timothy R.; Fedkiw, Peter S. (Dep. Chem. Eng., North Carolina State Univ., Raleigh, NC, 27695-7905, USA). Journal of the Electrochemical Society, 137(9), 2726-35 (English) 1990. CODEN: JESOAN. ISSN: 0013-4651.

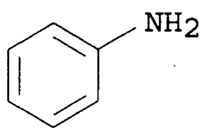
AB Kinetic rate equations for the redn. of nitrobenzene have been used with a math. model for mass transfer to a rotating **disk** electrode (RDE) to show how periodic current control can improve the selectivity for p-aminophenol compared to dc control at the same av. prodn. rate. The calcns., which assume pulse-current control and incorporate the effect of double layer charging, are compared to both dc and pulsed current expts. The calcns. predict that higher selectivity can be obtained using periodic control compared to dc control at the same product prodn. rate if the desired product is an intermediate (or derived therefrom) in a series of two electrochem. reactions and if the initial electrochem. reaction is more sensitive to potential than the second reaction. Specifically for the redn. of nitrobenzene, the intermediate is phenylhydroxylamine, from which p-aminophenol is derived by chem. reaction, and the second electrochem. reaction is its redn. to **aniline**. Low dusty cycles and high frequencies for the current pulses (i.e., short, large current pulses sepd. by small currents) are most beneficial. In the model developed here, the limitation on the max. obtainable selectivity enhancement is due to double layer charging which **smooths** the Faradaic currents so that they approach the dc case at high frequencies and/or small duty cycles. In the RDE expts., the reaction nonuniformity at high instantaneous current densities limited the selectivity enhancement that could be exptl. measured and, in fact, the predicted enhancement was less than the reproducibility of the expts. However, in electrode geometries with a more uniform current distribution, e.g., a **planar** electrode with a large length-to-gap ratio, a larger improvement should be obtainable.

IT **62-53-3P**, **Aniline**, preparation
(formation of, in electrochem. redn. of nitrobenzene on rotating

disk electrode, selectivity enhancement under periodic current control in relation to)

RN 62-53-3 HCA

CN Benzenamine (9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)
Section cross-reference(s): 22, 65

ST redn electrochem nitrobenzene rotating **disk** electrode; electroredn nitrobenzene copper electrode; mass transport reaction selectivity redn; aminophenol **aniline** formation redn

IT Electric double layer
(charging of, in nitrobenzene redn. on rotating **disk** electrode, selectivity enhancement in relation to)

IT Mass transfer
(in electrochem. redn. of nitrobenzene on rotating **disk** electrode under periodic current control)

IT **62-53-3P, Aniline**, preparation 59000-01-0P, p-Aminophenyl
(formation of, in electrochem. redn. of nitrobenzene on rotating **disk** electrode, selectivity enhancement under periodic current control in relation to)

IT 98-95-3, Nitrobenzene, reactions
(redn. of, electrochem., on rotating **disk** electrode, selectivity enhancement of)

L56 ANSWER 17 OF 24 HCA COPYRIGHT 2003 ACS

113:153305 Polyamic acid solutions as precursors for heat- and moisture-resistant polyimides. Mikogami, Yukikimi; Oba, Masayuki (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 02077468 A2 19900316 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-230959 19880914.

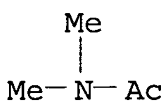
AB The title solns., with low rotational viscosity and useful as protective coatings and interlayer insulating materials for **semiconductor** devices, etc., comprise (A) polyamic acid solns. prepd. from tetracarboxylic dianhydrides, diamines, and dicarboxylic anhydrides or monoamines in AcNMe2 or N-methyl-2-pyrrolidone (I) and (B) 5-60 parts (per 100 parts AcNMe2 or I) ketones. Thus, a soln. of benzophenonetetracarboxylic dianhydride 78.681, pyromellitic dianhydride 17.993, and phthalic anhydride 0.997 g in I was treated with 62.102 g diaminodiphenyl ether and 4.920 g bis(.gamma.-aminopropyl)tetramethyldisiloxane at 2-8.degree. for 8 h to give 19.38% polyamic acid soln., 20 g of which was dild. with 4.6 g I and 5.2 g MEK to show rotational viscosity 1160 cP initially and 1120 cP after 45 days in dark at 0-5.degree., compared with initial viscosity of 1950 cP for the soln. prepd. without MEK. A **Si wafer** was spin

coated with the soln. and heated at 80-330.degree. to form a
polyimide coating with good gloss and **smoothness**.

IT **127-19-5**, N,N-**Dimethylacetamide**
(solvents, for polyamic acids, with low rotational viscosity,
ketones for)

RN 127-19-5 HCA

CN Acetamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



IC ICM C08L079-08
ICS C08K005-07; C08K005-20; C08K005-34; H01L021-312

CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 42, 76

ST polyimide coating **semiconductor** precursor; polyamic acid
soln storage stability; elec insulator polyimide precursor; ketone
solvent polyamic acid soln; rotational viscosity polyamic acid soln;
acetamide solvent polyamic acid; methylpyrrolidone solvent polyamic
acid

IT **Semiconductor** devices
(coatings and insulating layers for, polyimides as, polyamic acid
solns. as precursors for, with low rotational viscosity)

IT Polyamic acids
(solns., in **dimethylacetamide** or methylpyrrolidone,
with low rotational viscosity, ketones for)

IT Electric insulators and Dielectrics
(coatings, polyimides, precursors for, polyamic acid solns. as,
with low rotational viscosity, for **semiconductor**
devices)

IT Siloxanes and Silicones, compounds
(di-Me, aminopropyl group-contg., reaction products, with
polyamic acids, solns. of, in **dimethylacetamide** or
methylpyrrolidone, with low rotational viscosity, ketones for)

IT 85-44-9DP, 1,3-Isobenzofurandione, reaction products with polyamic
acids 84329-58-8DP, reaction products with anhydrides or
monoamines
(prepn. of, solns., in **dimethylacetamide** or
methylpyrrolidone, with low rotational viscosity, ketones for)

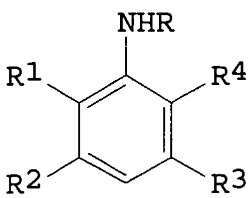
IT **127-19-5**, N,N-**Dimethylacetamide** 872-50-4, uses
and miscellaneous
(solvents, for polyamic acids, with low rotational viscosity,
ketones for)

L56 ANSWER 18 OF 24 HCA COPYRIGHT 2003 ACS

113:49946 Optical recording media using an oxidation-polymerization
product of **aniline** derivatives. Yoshitake, Junichi;
Yamanaka, Toru; Kuroiwa, Mitsuyuki (Mitsui Petrochemical Industries,
Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 01283188 A2 19891114
Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP

1988-114459 19880511.

GI



I

AB Optical recording media have, on a substrate, a recording layer contg. a polymer prepd. by oxidn. polymn. of **aniline** derivs. I (R, R1-4 = H, alkyl, alkoxy). The recording layer has high **smoothness** and the optical media exhibit high carrier to noise ratio in reading. Thus, 2,5-dimethoxyaniline was oxidn.-polymd., and a soln. of the polymer was spin-coated on a polyolefin **disk** substrate to give an optical **disk** . Signals were recorded and read by using a **semiconductor** laser (830 nm) to show high carrier to noise ratio in reading, and the **disk** exhibited good durability.

IC ICM B41M005-26
ICS C09K009-02

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35

ST **aniline** oxidn polymn optical recording

IT Recording materials
(optical, using oxidn.-polymd. **aniline** derivs., with good sensitivity)

IT Polymerization
(oxidative, of **aniline** derivs., for optical recording materials)

L56 ANSWER 19 OF 24 HCA COPYRIGHT 2003 ACS

X 111:196315 Preparation of aromatic substituted siloxanes and their use in optical apparatus. Carr, Neil; Goodwin, Martin John; Gray, George William; Scrowston, Richard Michael; Marsden, Richard; McRoberts, Andrew Martin; Toyne, Kenneth Johnson; Lacey, David (Plessey Co. PLC, UK). Brit. UK Pat. Appl. GB 2209169 A1 19890504, 35 pp. (English). CODEN: BAXXDU. APPLICATION: GB 1987-8261 19870407.

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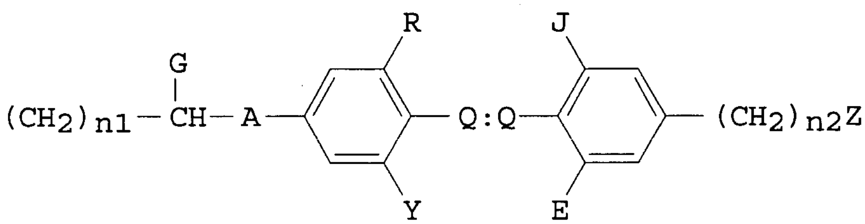


I

AB Trimethyl-terminated arom. substituted siloxanes having the formula Me3SiO[Me2SiO].hivin.l-[MeSi(X)O].hivin.mSiMe3 (.hivin.l = 1-99; .hivin.m = 99-1; X = I; Q = N or CH; G = H or Me; J = H, CN, or NO2; E = H, CN, or NO2; R = H, CN, NO2 or Me; Y = H, CN, NO2 or Me; A = CH2, O, NH, NMe, S, OCO, or CO2; Z = CN, CO2H, CO2Me, NO2, OH, OMe, OCOMe, NH2, NHMe, NMe2, NH(CH2)n2CO2H, NMe(CH2)n2CO2H, SH, SMe, or SO3H; n1 = 0-18; and n2 = 0-6) exhibit nonlinear optical properties and may be deposited as a Langmuir-Blodgett film. The film is useful in the manuf. of **planar** and channel waveguides. Thus, a mixt. of 4-(4-hydroxyphenylazo)benzonitrile, 4-bromo-1-butene, and anhyd. K2CO3 in dry MeCOEt were refluxed for 24 h, cooled, filtered, and evapd. to give 4-(4-butene-3-oxyphenylazo)benzonitrile (II) in 66% yield. A soln. of II and di-Me, hydrogen Me siloxane in PhMe was refluxed under N in the presence of H2PtCl6 in 2-propanol, mixed with 1-octene and worked up to give a compd. having m.p. 116.degree., IRvmax 2200 cm-1, and mass ion 253. The compd. was dissolved in a solvent and used in a Langmuir trough to form a multilayer deposit on common **substrates**, e.g., **Si wafers**, glass, or evapd. metals.

IC ICM C08G077-40
ICS C09K019-40

CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 25, 42, 66, 73

IT Alkylation
(of arylazobenzonitrile and arylazobenzoate and **aniline** deriv.)

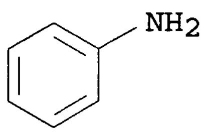
IT Coupling reaction
(of substituted **aniline** deriv., with methylaminobenzoate)

IT Waveguides
(optical, **planar**, arom.-substituted siloxanes with nonlinear optical properties for)

IT 619-45-4, Methyl 4-aminobenzoate
(coupling by, of substituted **aniline** deriv.)

L56 ANSWER 20 OF 24 HCA COPYRIGHT 2003 ACS
110:218230 Air contaminants. (United States Occupational Safety and Health Administration, Washington, DC, 20210, USA). Federal Register, 54(12, Bk. 2), 2332-983 (English) 19 Jan 1989. CODEN: FEREAC. ISSN: 0097-6326.

AB Under the Federal Occupational Safety and Health act, OSHA is amending existing air containment stds. and setting new permissible exposure limits for toxic substances commonly used in the workplace.
IT **62-53-3**, **Aniline**, biological studies
121-69-7, biological studies **127-19-5**
7440-21-3, Silicon, biological studies
(air pollution by, occupational exposure to, stds. for, in USA)
RN 62-53-3 HCA
CN Benzenamine (9CI) (CA INDEX NAME)



RN 121-69-7 HCA
CN Benzenamine, N,N-dimethyl- (9CI) (CA INDEX NAME)

Ph
|
Me—N—Me

RN 127-19-5 HCA
CN Acetamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)

Me
|
Me—N—Ac

RN 7440-21-3 HCA
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

CC 59-5 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 4
IT **Polishing**
(dust from, air pollution by, occupational exposure to, stds. for, of USA)
IT 50-00-0, Formaldehyde, biological studies 50-29-3, biological studies 50-32-8, Benzo[a]pyrene, biological studies 50-78-2 53-96-3 54-11-5, Nicotine 55-38-9, Fenthion 55-63-0, Nitroglycerin 56-23-5, biological studies 56-38-2, Parathion 56-81-5, 1,2,3-Propanetriol, biological studies 57-14-7, 1,1-Dimethylhydrazine 57-24-9, Strychnine 57-50-1, biological studies 57-57-8, 2-Oxetanone 58-89-9, Lindane 60-11-7, 4-Dimethylaminoazobenzene 60-29-7, Ethyl ether, biological studies 60-34-4, Methyl hydrazine 60-57-1, Dieldrin 61-82-5, Amitrole

62-53-3, Aniline, biological studies 62-73-7, Dichlorvos 62-74-8, Sodium fluoroacetate 62-75-9, N-Nitrosodimethylamine 63-25-2 64-17-5, Ethyl alcohol, biological studies 64-18-6, Formic acid, biological studies 64-19-7, Acetic acid, biological studies 67-56-1, Methyl alcohol, biological studies 67-63-0, Isopropyl alcohol, biological studies 67-64-1, Acetone, biological studies 67-66-3, Chloroform, biological studies 67-72-1, Hexachloroethane 68-11-1, Thioglycolic acid, biological studies 68-12-2, Dimethylformamide, biological studies 71-23-8, n-Propyl alcohol, biological studies 71-36-3, n-Butyl alcohol, biological studies 71-43-2, Benzene, biological studies 71-55-6, Methyl chloroform 72-20-8, Endrin 72-43-5, Methoxychlor 74-83-9, Methyl bromide, biological studies 74-87-3, Methyl chloride, biological studies 74-88-4, biological studies 74-89-5, Methylamine, biological studies 74-90-8, Hydrogen cyanide, biological studies 74-93-1, Methyl mercaptan, biological studies 74-96-4, Ethyl bromide 74-97-5, Chlorobromomethane 74-98-6, Propane, biological studies 74-99-7, Methyl acetylene 75-00-3, Ethyl chloride 75-01-4, biological studies 75-04-7, Ethylamine, biological studies 75-05-8, Acetonitrile, biological studies 75-07-0, Acetaldehyde, biological studies 75-08-1, Ethyl mercaptan 75-09-2, Methylene chloride, biological studies 75-12-7, Formamide, biological studies 75-15-0, Carbon disulfide, biological studies 75-21-8, Oxirane, biological studies 75-25-2, Bromoform 75-31-0, Isopropylamine, biological studies 75-34-3, 1,1-Dichloroethane 75-35-4, Vinylidene chloride, biological studies 75-43-4, Dichloromonofluoromethane 75-44-5, Phosgene 75-45-6, Chlorodifluoromethane 75-47-8, Iodoform 75-50-3, Trimethylamine, biological studies 75-52-5, Nitromethane, biological studies 75-55-8 75-56-9, biological studies 75-61-6, Difluorodibromomethane 75-63-8, Trifluorobromomethane 75-65-0, tert-Butyl alcohol, biological studies 75-69-4, Fluorotrichloromethane 75-71-8, Dichlorodifluoromethane 75-74-1, Tetramethyl lead 75-99-0, 2,2-Dichloropropionic acid 76-03-9, Trichloroacetic acid, biological studies 76-06-2, Chloropicrin 76-11-9, 1,1,1,2-Tetrachloro-2,2-difluoroethane 76-12-0, 1,1,2,2-Tetrachloro-1,2-difluoroethane 76-13-1, 1,1,2-Trichloro-1,2,2-trifluoroethane 76-15-3, Chloropentafluoroethane 76-22-2, Camphor 76-44-8 77-47-4, Hexachlorocyclopentadiene 77-73-6, Dicyclopentadiene 77-78-1, Dimethyl sulfate 78-00-2, Tetraethyl lead 78-30-8 78-34-2, Dioxathion 78-59-1, Isophorone 78-83-1, Isobutyl alcohol, biological studies 78-87-5, Propylene dichloride 78-92-2, sec-Butyl alcohol 78-93-3, 2-Butanone, biological studies 79-00-5, 1,1,2-Trichloroethane 79-01-6, biological studies 79-04-9, Chloroacetyl chloride 79-06-1, 2-Propenamide, biological studies 79-09-4, Propionic acid, biological studies 79-10-7, 2-Propenoic acid, biological studies 79-20-9, Methyl acetate 79-24-3, Nitroethane 79-27-6, Acetylene tetrabromide 79-34-5, 1,1,2,2,-Tetrachloroethane 79-41-4, biological studies 79-46-9, 2-Nitropropane 80-62-6 81-81-2, Warfarin 83-26-1, Pindone

83-79-4, Rotenone 84-66-2, Diethyl phthalate 84-74-2, Dibutyl phthalate 85-00-7 85-44-9, Phthalic anhydride 86-50-0, Azinphos-methyl 87-68-3, Hexachlorobutadiene 87-86-5, Pentachlorophenol 88-72-2, o-Nitrotoluene 88-89-1, Picric acid 89-72-5, o-sec-Butylphenol 90-04-0, o-Anisidine 91-20-3, Naphthalene, biological studies 91-59-8, .beta.-Naphthylamine 91-94-1, 3,3'-Dichlorobenzidine 92-52-4, Diphenyl, biological studies 92-67-1, 4-Aminodiphenyl 92-84-2, Phenothiazine 92-87-5, Benzidine 92-93-3, 4-Nitrodiphenyl 93-76-5 94-36-0, Benzoyl peroxide, biological studies 94-75-7, biological studies 95-13-6, Indene 95-47-6, biological studies 95-48-7, 2-Methyl phenol, biological studies 95-49-8, o-Chlorotoluene 95-50-1, o-Dichlorobenzene 95-53-4, o-Toluidine, biological studies 96-12-8, 1,2-Dibromo-3-chloropropane 96-18-4, 1,2,3-Trichloropropane 96-22-0, Diethyl ketone 96-33-3 96-69-5, 4,4'-Thiobis(6-tert,butyl-m-cresol) 97-77-8, Disulfiram 98-00-0, Furfuryl alcohol 98-01-1, Furfural, biological studies 98-51-1, p-tert-Butyltoluene 98-82-8, Cumene 98-83-9, biological studies 98-95-3, Nitrobenzene, biological studies 99-08-1, m-Nitrotoluene 99-65-0, 1,3-Dinitrobenzene 99-99-0, p-Nitrotoluene 100-00-5, p-Nitrochlorobenzene 100-01-6, biological studies 100-25-4 100-37-8 100-41-4, Ethyl benzene, biological studies 100-42-5, biological studies 100-44-7, Benzyl chloride, biological studies 100-61-8, biological studies 100-63-0 100-74-3, N-Ethylmorpholine 101-14-4, 4,4'-Methylene bis(2-chloroaniline) 101-68-8 101-84-8, Phenyl ether 102-54-5, Dicyclopentadienyl iron 102-81-8 104-94-9, p-Anisidine 105-46-4, sec-Butyl acetate 105-60-2, biological studies 106-35-4, 3-Heptanone 106-42-3, p-Xylene, biological studies 106-44-5, 4-Methylphenol, biological studies 106-46-7, p-Dichlorobenzene 106-49-0, p-Toluidine, biological studies 106-50-3, p-Phenylene diamine, biological studies 106-51-4, 2,5-Cyclohexadiene-1,4-dione, biological studies 106-68-3, Ethyl amyl ketone 106-87-6 106-89-8, Epichlorohydrin, biological studies 106-92-3, Allyl glycidyl ether 106-93-4, Ethylene dibromide 106-97-8, Butane, biological studies 106-99-0, 1,3-Butadiene, biological studies 107-02-8, Acrolein, biological studies 107-05-1, Allyl chloride 107-06-2, Ethylene dichloride, biological studies 107-07-3, Ethylene chlorohydrin, biological studies 107-13-1, Acrylonitrile, biological studies 107-15-3, 1,2-Ethanediamine, biological studies 107-18-6, Allyl alcohol, biological studies 107-19-7, Propargyl alcohol 107-20-0, Chloroacetaldehyde 107-21-1, 1,2-Ethanediol, biological studies 107-30-2, Chloromethyl methyl ether 107-31-3, Methyl formate 107-41-5, Hexylene glycol 107-49-3, TEPP 107-66-4, Dibutyl phosphate 107-87-9, 2-Pentanone 108-03-2, 1-Nitropropane 108-05-4, Vinyl acetate, biological studies 108-10-1, Hexone 108-11-2, Methyl isobutyl carbinol 108-18-9, Diisopropylamine 108-20-3, Isopropyl ether 108-21-4, Isopropyl acetate 108-24-7, Acetic anhydride 108-31-6, 2,5-Furandione, biological studies 108-38-3, m-Xylene, biological studies 108-39-4, 3-Methylphenol, biological studies 108-44-1, m-Toluidine, biological studies 108-46-3, Resorcinol, biological

studies 108-83-8, Diisobutyl ketone 108-84-9 108-87-2, Methylcyclohexane 108-88-3, biological studies 108-90-7, Chlorobenzene, biological studies 108-91-8, Cyclohexanamine, biological studies 108-93-0, Cyclohexanol, biological studies 108-94-1, Cyclohexanone, biological studies 108-95-2, Phenol, biological studies 108-98-5, Phenyl mercaptan, biological studies 109-59-1, 2-Isopropoxyethanol 109-60-4, n-Propyl acetate 109-66-0, Pentane, biological studies 109-73-9, Butylamine, biological studies 109-79-5, Butyl mercaptan 109-86-4, Methyl cellosolve 109-87-5, Methylal 109-89-7, Diethylamine, biological studies 109-94-4, Ethyl formate 109-99-9, Tetrahydrofuran, biological studies 110-12-3, Methyl isoamyl ketone
(air pollution by, occupational exposure to, stds. for, in USA)

IT 110-19-0, Isobutyl acetate 110-43-0, Methyl-n-amyl ketone 110-49-6 110-54-3, n-Hexane, biological studies 110-62-3, n-Valeraldehyde 110-80-5, 2-Ethoxyethanol 110-82-7, Cyclohexane, biological studies 110-83-8, Cyclohexene, biological studies 110-86-1, Pyridine, biological studies 110-91-8, Morpholine, biological studies 111-15-9, 2-Ethoxyethyl acetate 111-30-8, Pentanedial 111-40-0 111-42-2, Diethanolamine, biological studies 111-44-4 111-65-9, Octane, biological studies 111-76-2, 2-Butoxyethanol 111-84-2, Nonane 114-26-1, Propoxur 115-29-7, Endosulfan 115-77-5, Pentaerythritol, biological studies 115-86-6, Triphenyl phosphate 115-90-2, Fensulfothion 117-81-7 118-52-5, 1,3-Dichloro-5,5-dimethyl hydantoin 118-96-7, 2,4,6-Trinitrotoluene 120-80-9, Catechol, biological studies 120-82-1, 1,2,4-Trichlorobenzene 121-44-8, Triethylamine, biological studies 121-45-9, Trimethyl phosphite **121-69-7**, biological studies 121-75-5, Malathion 121-82-4, Cyclonite 122-39-4, Diphenylamine, biological studies 122-60-1, Phenyl glycidyl ether 123-19-3, Dipropyl ketone 123-31-9, 1,4-Benzenediol, biological studies 123-42-2, Diacetone alcohol 123-51-3, Isoamyl alcohol 123-73-9 123-86-4, n-Butyl-acetate 123-91-1, 1,4-Dioxane, biological studies 123-92-2, Isoamyl acetate 124-38-9, Carbon dioxide, biological studies 124-40-3, Dimethylamine, biological studies 126-73-8, Tributyl phosphate, biological studies 126-98-7, Methylacrylonitrile 126-99-8, .beta.-Chloroprene 127-18-4, Perchloroethylene, biological studies **127-19-5** 128-37-0, 2,6-Di-tert-butyl-p-cresol, biological studies 131-11-3, Dimethylphthalate 133-06-2, Captan 134-32-7, 1-Naphthalenamine 136-78-7, Sesone 137-05-3, Methyl 2-cyanoacrylate 137-26-8, Thiram 138-22-7, n-Butyl lactate 140-88-5 141-32-2 141-43-5, biological studies 141-66-2, Dicrotophos 141-78-6, Ethyl acetate, biological studies 141-79-7, Mesityl oxide 142-64-3, Piperazine dihydrochloride 142-82-5, Heptane, biological studies 144-62-7, Ethanedioic acid, biological studies 148-01-6 150-76-5, 4-Methoxyphenol 151-56-4, Aziridine, biological studies 156-62-7, Calcium cyanamide 218-01-9, Chrysene 287-92-3, Cyclopentane 298-00-0, Methyl parathion 298-02-2, Phorate 298-04-4, Disulfoton 299-84-3, Ronnel 299-86-5, Crufomate 300-76-5, Dimethyl-1,2-dibromo-2,2-dichloroethyl phosphate 302-01-2,

Hydrazine, biological studies 309-00-2, Aldrin 314-40-9, Bromacil 330-54-1, Diuron 333-41-5, Diazinon 334-88-3, Diazomethane 353-50-4, Carbonyl fluoride 409-21-2, Silicon carbide, biological studies 420-04-2, Cyanamide 463-51-4, Ketene 471-34-1, Carbonic acid calcium salt (1:1), biological studies 479-45-8, Tetryl 504-29-0, 2-Aminopyridine 506-77-4, Cyanogen chloride 509-14-8, Tetranitromethane 528-29-0, 1,2-Dinitrobenzene 532-27-4 534-52-1, Dinitro-o-cresol 540-59-0, 1,2-Dichloroethylene 540-88-5, tert-Butyl acetate 542-75-6, 1,3-Dichloropropene 542-88-1, Bis(Chloromethyl) ether 542-92-7, Cyclopentadiene, biological studies 552-30-7 556-52-5, Glycidol 557-05-1, Zinc stearate 558-13-4, Carbon tetrabromide 563-12-2, Ethion 563-80-4, Methyl isopropyl ketone 583-60-8 584-84-9 591-78-6, 2-Hexanone 593-60-2, Vinyl bromide 594-42-3, Perchloromethyl mercaptan 594-72-9, 1,1-Dichloro-1-nitroethane 600-25-9, 1-Chloro-1-nitropropane 603-34-9, Triphenyl amine 624-83-9, Methyl isocyanate 626-17-5, 1,3-Benzenedicarbonitrile 627-13-4, n-Propyl nitrate 628-63-7, n-Amyl acetate 628-96-6, Ethylene glycol dinitrate 630-08-0, Carbon monoxide, biological studies 638-21-1, Phenylphosphine 681-84-5, Methyl silicate 684-16-2, Hexafluoroacetone 768-52-5, N-Isopropylaniline 944-22-9, Fonofos 999-61-1, 2-Hydroxypropyl acrylate 1189-85-1, tert-Butyl chromate 1300-73-8, Xylidine 1303-96-4, Borax decahydrate 1305-62-0, Calcium hydroxide, biological studies 1305-78-8, Calcium oxide, biological studies 1309-37-1, Iron oxide, biological studies 1309-48-4, Magnesium oxide, biological studies 1310-58-3, Potassium hydroxide, biological studies 1310-73-2, Sodium hydroxide, biological studies 1314-13-2, Zinc oxide, biological studies 1314-62-1, Vanadium pentoxide, biological studies 1314-80-3, Phosphorus pentasulfide 1319-77-3, Cresol 1320-37-2, Dichlorotetrafluoroethane 1320-67-8, Propylene glycol monomethyl ether 1321-64-8, Pentachloronaphthalene 1321-65-9, Trichloronaphthalene 1321-74-0, Divinyl benzene, biological studies 1330-43-4, Anhydrous borax 1332-29-2, Tin oxide 1335-87-1, Hexachloronaphthalene 1335-88-2, Tetrachloronaphthalene 1344-28-1, .alpha.-Alumina, biological studies 1344-95-2, Calcium silicate 1477-55-0, 1,3-Benzenedimethanamine 1563-66-2, Carbofuran 1912-24-9 1929-82-4, 2-Chloro-6-trichloromethyl pyridine 2039-87-4, o-Chlorostyrene 2074-87-5, Cyanogen 2104-64-5 2179-59-1, Allyl propyl disulfide 2234-13-1, Octachloronaphthalene 2238-07-5, Diglycidyl ether 2425-06-1, Captafol 2426-08-6 2551-62-4, Sulfur hexafluoride 2698-41-1, o-Chlorobenzylidene malononitrile 2699-79-8, Sulfuryl fluoride 2921-88-2, Chlorpyrifos 2971-90-6, Clopidol 3333-52-6, Tetramethyl succinonitrile 3383-96-8, Temephos 3394-04-5 3689-24-5, Sulfotep 4016-14-2, Isopropyl glycidyl ether 4098-71-9, Isophorone diisocyanate 4170-30-3, Crotonaldehyde 4685-14-7 5124-30-1 6423-43-4, Propylene glycol dinitrate 6923-22-4, Monocrotophos 7429-90-5, Aluminum, biological studies 7429-90-5D, Aluminum, compds. 7439-89-6, Iron, biological studies 7439-89-6D, Iron, salts 7439-92-1, Lead, biological studies

7439-96-5, Manganese, biological studies 7439-96-5D, Manganese, compds. 7439-97-6, Mercury, biological studies 7439-97-6D, Mercury, compds. 7439-98-7, Molybdenum, biological studies 7439-98-7D, Molybdenum, compds. 7440-02-0, Nickel, biological studies 7440-02-0D, Nickel, compds. 7440-06-4, Platinum, biological studies 7440-06-4D, Platinum, salts 7440-16-6, Rhodium, biological studies 7440-16-6D, Rhodium, compds. **7440-21-3**, Silicon, biological studies 7440-22-4, Silver, biological studies 7440-25-7, Tantalum, biological studies 7440-28-0D, Thallium, compds. 7440-31-5, Tin, biological studies 7440-31-5D, Tin, compds. 7440-33-7, Tungsten, biological studies 7440-33-7D, Tungsten, compds. 7440-36-0, Antimony, biological studies 7440-38-2D, Arsenic, inorg. and org. compds. 7440-39-3D, Barium, compds. 7440-41-7, Beryllium, biological studies 7440-41-7D, Beryllium, compds. 7440-43-9, Cadmium, biological studies 7440-47-3, Chromium, biological studies 7440-47-3D, Chromium, compds. 7440-48-4, Cobalt, biological studies 7440-50-8, Copper, biological studies 7440-58-6, Hafnium, biological studies 7440-61-1, Uranium, biological studies 7440-61-1D, Uranium, compds. 7440-62-2, Vanadium, biological studies 7440-65-5, Yttrium, biological studies 7440-67-7D, Zirconium, compds. 7440-74-6, Indium, biological studies 7440-74-6D, Indium, compds. 7446-09-5, Sulfur dioxide, biological studies 7553-56-2, Iodine, biological studies 7572-29-4, Dichloroacetylene 7580-67-8, Lithium hydride 7616-94-6, Perchloryl fluoride 7631-86-9, Silica, biological studies 7631-90-5, Sodium bisulfite 7637-07-2, Boron trifluoride, biological studies 7646-85-7, Zinc chloride, biological studies 7647-01-0, Hydrogen chloride, biological studies 7664-38-2, Phosphoric acid, biological studies 7664-39-3, Hydrogen fluoride, biological studies 7664-41-7, Ammonia, biological studies 7664-93-9, Sulfuric acid, biological studies 7681-57-4, Sodium metabisulfite 7697-37-2, Nitric acid, biological studies 7719-09-7, Thionyl chloride 7719-12-2, Phosphorus trichloride
(air pollution by, occupational exposure to, stds. for, in USA)

L56 ANSWER 21 OF 24 HCA COPYRIGHT 2003 ACS

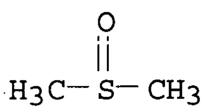
103:217042 High-temperature films and coating solutions for use in the manufacture of **semiconductor integrated circuits**. Cordes, William Frederick, III; Jeffries, Alfred T., III (Hunt, Philip A., Chemical Corp., USA). Eur. Pat. Appl. EP 146811 A2 19850703, 29 pp. DESIGNATED STATES: R: BE, DE, FR, GB, IT. (English). CODEN: EPXXDW. APPLICATION: EP 1984-114417 19841128. PRIORITY: US 1983-556022 19831129.

AB A coating soln. for use in forming **planar**, heat-resistant dielec. films having a low mobile ion content and good polymg. properties. comprises a soln. of an uncured poly(imidazopyrrolone-imide) in a polar org. solvent. The soln. may also contain an org. diluent. Films formed from the polymer are useful in multilayer **semiconductor integrated circuits** wherein adjacent conductor layers are sepd. by a passivating layer of the film. Thus, a soln. of 4,4'-oxydianiline and

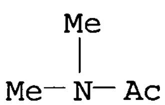
3,3',4,4'-tetraaminobiphenyl in 1-methyl-2-pyrrolidinone (I) [872-50-4] was treated with 3,3',4,4'-benzophenonetetracarboxylic dianhydride soln. in I to give a product having a viscosity of 0.7 Pa-s. A sample of the reaction mixt. was dild. to 11% solids, filtered to 5.0 .mu., and used to flood precoated (with an adhesion promoter) **Si wafers**. The **wafers** were baked at 125-140.degree. for 30 min and 300.degree. for 60 min to give cured films 0.82-0.95 .mu. thick.

IT **67-68-5**, uses and miscellaneous **127-19-5**
(solvents, for polyimidazopyrrolone-polyimide coatings)

RN 67-68-5 HCA
CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



RN 127-19-5 HCA
CN Acetamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



IC ICM C08G073-20
ICS H01L023-30; H01B003-30
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): 76
ST polyimidazopyrrolone polyimide coating **integrated circuit**; dielec film polyimidazopyrrolone polyimide; heat resistance polyimidazopyrrolone polyimide; aminobiphenyl copolymer coating **integrated circuit**; benzophenonecarboxylic anhydride copolymer coating; oxydianiline copolymer coating **integrated circuit**; methylpyrrolidinone solvent polyimidazopyrrolone polyimide
IT Heat-resistant materials
(polyimidazopyrrolone-polyimide films, for **semiconductor integrated circuits**)
IT Electric insulators and Dielectrics
(coatings, polyimidazopyrrolone-polyimide, for **semiconductor integrated circuits**, heat-resistant)
IT Electric **circuits**
(**integrated**, MOS, elec. insulating coating films for, from polyimidazopyrrolone-polyimides, heat-resistant)
IT 26376-56-7 99278-75-8
(coatings, elec. insulating, for **semiconductor integrated circuits**, heat-resistant)
IT **67-68-5**, uses and miscellaneous 68-12-2, uses and miscellaneous **127-19-5** 872-50-4, uses and miscellaneous

(solvents, for polyimidazopyrrolone-polyimide coatings)

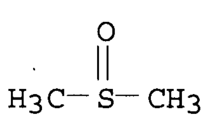
L56 ANSWER 22 OF 24 HCA COPYRIGHT 2003 ACS
103:79285 Ultraviolet stabilizers of the 2-hydroxyphenylbenzotriazole class - influence of the solvent on the absorption spectra and photochemical deactivation mechanism. Woessner, Gottfried; Goeller, Gernot; Rieker, Jochen; Hoier, Helga; Stezowski, John J.; Daltrozzo, Ewald; Neureiter, Manfred; Kramer, Horst E. A. (Inst. Phys. Chem., Univ. Stuttgart, Stuttgart, D-7000/80, Fed. Rep. Ger.). Journal of Physical Chemistry, 89(17), 3629-36 (English) 1985. CODEN: JPCHAX. ISSN: 0022-3654.

AB The intramol. H bond is the origin of the rapid radiationless deactivation of TIN (2-(2'-hydroxy-5'-methylphenyl)benzotriazole) widely used as an UV stabilizer (TIN(intra)) for polymers. The equil. between TIN(intra) and the TIN mol. with an intermol. H bond to solvent mols. TIN(inter) in the ground state is mainly detd. by steric factors and by the H-acceptor ability of the solvent. The S1 state of TIN(inter) (.tau.F = 0.4 ns in Me2SO, 296 K) is longer lived than the proton-transferred state S1' of TIN(intra) and is deactivated by **IC** and ISC (.PHI.ISC = 0.15 in Me2SO, 296 K), the comparatively high triplet yield giving rise to degrdn. reactions of either the TIN mol. itself or of the polymer. Emission and emission excitation spectra showed that methyltinuvin (MT) can be considered as a model compd. for TIN(inter). An x-ray crystal structure detn. revealed MT to be distorted (the dihedral angles between benzotriazole and p-cresol rings are 54.9 and 56.3.degree., resp. (two types of MT mols.)), whereas TIN itself is **planar** in the pure cryst. state. As a model compd. for coplanar TIN the conformationally fixed deriv. of the diphenylboryl chelate was synthesized.

IT **67-68-5**, properties **127-19-5**
(solvent effect of, on spectral properties of hydroxyphenylbenzotriazole UV stabilizer)

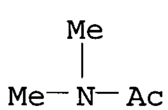
RN 67-68-5 HCA

CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



RN 127-19-5 HCA

CN Acetamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 60-29-7, properties **67-68-5**, properties 75-05-8,

properties 84-74-2 100-76-5 109-99-9, properties 110-86-1, properties 121-44-8, properties **127-19-5** 142-82-5, properties
(solvent effect of, on spectral properties of hydroxyphenylbenzotriazole UV stabilizer)

L56 ANSWER 23 OF 24 HCA COPYRIGHT 2003 ACS
102:195221 Applying a poly(methacrylic anhydride) resist to a **semiconductor**. Brault, Robert G. (Hughes Aircraft Co. , USA). U.S. US 4508812 A 19850402, 3 pp. (English). CODEN: USXXAM. APPLICATION: US 1984-606506 19840503.

AB A method of pretreating a **semiconductor wafer** is described so that a soln. coating of a pos. resist of poly(methacrylic anhydride) (I) can be directly applied to the treated surface. In the method a **Si wafer** is 1st precoated with a thin layer of poly(tert-Bu methacrylate) (II) and then heated to convert the II to the anhydride. The thickness of this anhydride-precursor layer is .ltorsim.1000 .ANG.. Next, a soln. of I dissolved in a solvent that is capable of wetting the precursor layer is applied to the treated **wafer** and then the solvent evapd. to give a I layer having a thickness of .apprx.2000-20,000 .ANG.. Thus, a **Si wafer** (thickness of 10-15 mils and diam. 2 in.) was 1st precoated with a 2% soln. of II in PhMe to give a 250-300 .ANG. thick layer which was then heated at 215.degree. for 1 h to give an anhydride layer of .apprx.250 .ANG. thickness. A 5.3 wt.% soln. of I in N-methylpyrrolidone was then spin-coated thereon to give a **smooth** resist layer.

IT **7440-21-3**, uses and miscellaneous
(coating of, with poly(methacrylic anhydride) electron-beam resist, pretreatment with poly(tert-Bu methacrylate) in relation to)

RN 7440-21-3 HCA

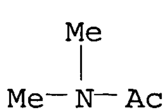
CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

IT **127-19-5**
(electron-beam resists contg. poly(methacrylic anhydride) and, coating of, on **semiconductor** supports, pretreatment with poly(tert-Bu methacrylate) in relation to)

RN 127-19-5 HCA

CN Acetamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



IC ICM H01L021-316

NCL 430270000

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST polymethacrylic anhydride electron resist coating; silicon support electron resist coating; **semiconductor** support electron resist coating; polybutyl methacrylate coating **semiconductor** support; methacrylic anhydride polymer electron resist; butyl methacrylate polymer coating **semiconductor**
IT **7440-21-3**, uses and miscellaneous
(coating of, with poly(methacrylic anhydride) electron-beam resist, pretreatment with poly(tert-Bu methacrylate) in relation to)
IT 25189-00-8
(coatings, on **semiconductor** supports, heat-treated, for improved application of poly(methacrylic anhydride) electron-beam resist)
IT 25300-99-6
(electron-beam resist, coating of, on **semiconductor** supports, poly(tert-Bu methacrylate) pretreatment in relation to)
IT 68-12-2, uses and miscellaneous **127-19-5** 872-50-4, uses and miscellaneous
(electron-beam resists contg. poly(methacrylic anhydride) and, coating of, on **semiconductor** supports, pretreatment with poly(tert-Bu methacrylate) in relation to)

L56 ANSWER 24 OF 24 HCA
81:70135 Encapsulated solid state electronic devices having a sealed lead-encapsulant interface. Szedon, John R.; Jackson, John A.; Phillips, David C. (Westinghouse Electric Corp.). U.S. US 3821099 19740628, 10 pp. (English). CODEN: USXXAM. APPLICATION: US 1972-245416 19720419.
AB A **smooth**, flexible, pinhole-free film, e.g. a 0.5-5-mil-thick polyimide resin film, is electrodeposited, preferably from a **nonaq**. compn., onto the device connection leads. The film provides an adherable surface for the encapsulating plastic. The coatings are deposited at c.ds. of 2-10 mA/in.2 and pH 8-10 from colloidal or noncolloidal **nonaq**. compns. of polyamic acid salts with amines, and imidized by a heat source to cure and convert them to polyimides. The polyamic acids are prepd. by mixing a suitable arom. tetracarboxylic dianhydride or tricarboxylic anhydride with an arom. diamine. The salt-forming amines include org. tertiary aliph. and arom. amines, e.g. amines and imidazoles. The components must be present in crit. wt. percent ratios for suitable viscosities, and prevention of pptn. The colloidal compn. comprises .apprx.1 polyamic acid, .apprx.0.8-1.2 N-contg. compd., .apprx.29-37 **nonaq**. non-electrolyzable org. solvent for the acid, and .apprx.50-150 parts by wt. **nonaq**. nonelectrolyzable org. solvent for the salt, e.g. a ketone. The noncolloidal compn. comprises .apprx.1 polyamic acid, .apprx.0.8-1.5 N-contg. compd., .apprx.12.5-15 solvent for the acid, and .apprx.7-9 parts by wt. solvent for the salt. For example 8.7 g polyamide acid polymer dissolved in 44.3 g solvent was mixed with 219 g **dimethyl sulfoxide**. An amine salt was

produced by adding 7.3 g Et3N dropwise. The soln. was stirred vigorously and heated to .apprx.50.degree. for .apprx.15 min. The soln. was then slowly added to 629 g Me2CO, to produce a colloidal compn. to be used for the coating process. Because of the nature of charged polymer-salt particles, bare metal areas are coated in preference to slightly coated regions. The product film is very uniform in thickness.

IC B01K; C23B

NCL 204181000

CC 71-13 (Electric Phenomena)
Section cross-reference(s): 42

ST polyimide coating conductive lead; potting epoxy polyimide coating; **semiconductor** polyimide coating encapsulation

IT Carboxylic acids, compounds
(amine salts with polyamic, in coating of elec. conducted leads in **semiconductor** devices with polyimides)

IT **Semiconductor** devices
(coating of conductive leads in, with polyimides, for improved potting)

IT Polyimides
(coating with, of elec. conductive leads in **semiconductor** devices)

IT Polyamides, uses and miscellaneous
(in coating of elec. conductive leads in **semiconductor** devices with polyimides)

IT Electric conductors
(in **semiconductor** devices, coating of, with polyimides)

IT Coating process
(of elec. conductive leads in **semiconductor** devices with polyimides)

IT Potting
(of **semiconductor** devices, coating of conductive leads with polyimides in)

IT Epoxy resins
(potting with, of **semiconductor** devices, coating of conductive leads with polyimides in relation to)

IT Ethanamine, N,N-diethyl-, salts with polyamic acids
(in coating of elec. conducted leads in **semiconductor** devices with polyimides)

=> d l57 1-10 cbib abs hitstr hitind

L57 ANSWER 1 OF 10 HCA COPYRIGHT 2003 ACS

135:156634 **Polishing** pad composition for **polishing** of **semiconductor wafers**. Hasegawa, Toru; Ogawa, Toshihiro; Kurihara, Fumio (JSR Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001214154 A2 20010807, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-333460 20001031. PRIORITY: JP 1999-334688 19991125.

AB The compns. contain an aq. substance and abrasives in a **non -aq**. substance. Preferably, at least part of the

abrasives are dispersed in the aq. substance, and the abrasives have an. size 0.01-100 .mu.m.

IC ICM C09K003-14
ICS C09K003-14; B24B037-00; B24D011-00; C08K003-00; C08L101-00; H01L021-304

CC 57-7 (Ceramics)
Section cross-reference(s): 76

ST **polishing** pad compn **semiconductor wafer** ; aq substance abrasive **polishing** pad

IT Polyesters, uses
(elastomer; in **polishing** pad compn. for **polishing** of **semiconductor wafers**)

IT Polyurethanes, uses
(in **polishing** pad compn. for **polishing** of **semiconductor wafers**)

IT **Polishing** materials
Semiconductor materials
(**polishing** pad compn. for **polishing** of **semiconductor wafers**)

IT 1306-38-3, Cerium oxide, uses 1313-13-9, Manganese dioxide, uses
(abrasive; in **polishing** pad compn. for **polishing** of **semiconductor wafers**)

IT 9002-89-5, Polyvinyl alcohol 12619-70-4, Cyclodextrin
(aq. substance; in **polishing** pad compn. for **polishing** of **semiconductor wafers**)

IT 9003-17-2, polybutadiene 9003-56-9, ABS resin
(in **polishing** pad compn. for **polishing** of **semiconductor wafers**)

L57 ANSWER 2 OF 10 HCA COPYRIGHT 2003 ACS

7 132:123755 Thermoplastic resin compositions and abrasive pads thereof. Hasegawa, Akira; Nakanishi, Hideo; Kobayashi, Yutaka; Kawamura, Tomoo; Ogawa, Toshihiro (JSR Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000034416 A2 20000202, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-126842 19990507. PRIORITY: JP 1998-133527 19980515.

AB The abrasive pads, esp. suitable for **polishing semiconductor wafer** surfaces, comprise compns. composed of **nonwater**-sol. thermoplastic resins with Shore D hardness .gtoreq.35% and contg. 5-60 vol.% water-sol. substances with av. particle diam. 0.1-500 .mu.m. Thus, a compn. contg. 80 vol.% ethylene-vinyl alc. copolymer (Eval G 110) and 20 vol.% PVA (Poval CP 1000) was molded and pressed to give sheets having Shore D hardness 86, av. particle diam. of PVA 2 .mu.m, **Si wafer polishing** speed 0.6 .mu.m/min, and good **smoothness** of the **polished wafer**.

IC ICM C08L101-00
ICS B24B037-00; C08J005-14; C08K003-24

CC 38-3 (Plastics Fabrication and Uses)

ST **semiconductor wafer polishing** polymeric abrasive pad; water sol thermoplastic abrasive pad; ethylene vinyl alc copolymer abrasive pad; PVA EVA abrasive pad

wafer polishing

L57 ANSWER 3 OF 10 HCA

129:128191 Exploratory studies of the carbon/**nonaqueous** electrolyte interface by electrochemical and in situ ellipsometry measurements. Kong, F.; Kim, J.; Song, X.; Inaba, M.; Kinoshita, K.; Mclarnon, F. (Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory, Berkeley, CA, 94720, USA). Electrochemical and Solid-State Letters, 1(1), 39-41 (English) 1998. CODEN: ESLEF6. ISSN: 1099-0062. Publisher: Electrochemical Society.

AB An electrochem. cell was fabricated and used for in situ ellipsometry studies of the carbon/electrolyte interface during potential cycling in **nonaq**. electrolytes. The initial studies were conducted on **smooth** carbon films obtained by pyrolysis of a pos. photoresist on a **Si wafer** at 1000.degree.. The potential of the carbon film in 1 M LiPF6 + ethylene carbonate-dimethyl carbonate was scanned from open circuit (3.0 V) to 0 V (vs. Li), and the ellipsometry parameters .DELTA. and .psi. were recorded. Detectable changes in the ellipsometry parameters occurred at potentials near 1.5 V, where a large cathodic current was obsd. These changes were attributed to the formation of a solid electrolyte interface (SEI) layer. Subsequent potential scans between 3.0 and 0 V showed no significant change in the ellipsometry parameters or the current-potential profiles, indicative of an SEI layer which remained unchanged. XPS measurements indicated that Li and F were the major elements present in the SEI layer on the carbon surface. Preliminary anal. of the ellipsometry data using a singe-layer effective medium approxn. model indicated that the SEI layer was 4 nm thick.

IT **7440-21-3**, Silicon, uses
    (formation of carbon film by pyrolysis of pos. photoresist on)

RN 7440-21-3 HCA

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

CC 72-2 (Electrochemistry)
    Section cross-reference(s): 52, 66, 73, 78

ST carbon **nonaq** electrolyte interface electrochem ellipsometry

IT Electrode-electrolyte interface
    (electrochem. measurements and in situ ellipsometry of interface of carbon/**nonaq**. electrolyte contg. LiPF6)

IT Solid electrolytes
    (electrochem. measurements and in situ ellipsometry of solid electrolyte interface layer on carbon in **nonaq**. electrolyte contg. LiPF6)

IT Electrochemical cells
    (for in situ ellipsometry studies of carbon/electrolyte interface during potential cycling in **nonaq**. electrolyte)

IT Positive photoresists
(formation of carbon film on **silicon wafer** by pyrolysis of)
IT Thermal decomposition
(formation of carbon film on **silicon wafer** by pyrolysis of pos. photoresist)
IT Cyclic voltammetry
Ellipsometry
(in study of carbon/**nonaq**. electrolyte interface)
IT Diffusion
(of Li+ ions in carbon from **nonaq**. electrolyte contg. LiPF6)
IT Films
(of carbon obtained by pyrolysis of pos. photoresist on **Si wafer** for electrochem. and in situ ellipsometry of solid electrolyte interface layer on carbon in **nonaq**. electrolyte)
IT Reduction, electrochemical
(of **nonaq**. electrolyte contg. LiPF6 during cycling in electrochem. cell)
IT 7439-93-2, Lithium, properties
(electrochem. intercalation of lithium into carbon in **nonaq**. electrochem. cell)
IT 7440-44-0, Carbon, uses
(electrochem. measurements and in situ ellipsometry of carbon/ **nonaq**. electrolyte interface)
IT 7789-24-4, Lithium fluoride, properties
(formation in solid electrolyte layer on carbon during potential cycling in **nonaq**. electrolyte contg. LiPF6)
IT **7440-21-3**, Silicon, uses
(formation of carbon film by pyrolysis of pos. photoresist on)

L57 ANSWER 4 OF 10 HCA COPYRIGHT 2003 ACS
126:125743 Slurry for **polishing** interlayer electric insulator film in **semiconductor** device. Muroyama, Masakazu (Sony Corp, Japan). Jpn. Kokai Tokkyo Koho JP 08330262 A2 19961213 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-133584 19950531.

okay

AB The slurry for **planarization** of interlayer elec. insulator film in **semiconductor** device consists of a water-sol. inorg. fine particle dispersed in a **nonaq**. medium. The particle may be .gtoreq.1 selected from metal carbonate, sulfate, nitrate, ammonium salt, halide, perchlorate, silicate, borate, phosphate, and arsenite. A **semiconductor** device is manufd. by a process including **polishing** an interlayer step-covering film comprising (fluorinated) polyimides, PTFE, (polycarbonate-)siloxanes, fluorinated silicate salts, porous polymers, and/or parilenes. The slurry shows prevention of scratching on the insulator film and the particle is completely removed by washing by water.
IC ICM H01L021-304
ICS H01L021-304; B24B037-00; C09K003-14

CC 76-3 (Electric Phenomena)
Section cross-reference(s): 38, 57
ST slurry **polishing semiconductor wafer**;
interlayer elec insulator polymer **polishing**; water sol
particle **polishing** slurry; **planarization**
interlayer film **polishing** slurry; metal salt dispersion
slurry **polishing**
IT Group VA element compounds
(arsenites, metal, particles; slurry of water-sol. particle
dispersion in **nonaq**. medium for **polishing**
interlayer polymer film in **semiconductor** device)
IT Fluoropolymers, miscellaneous
Polyimides, miscellaneous
Polysiloxanes, miscellaneous
(elec. insulator, interlayer film; slurry of water-sol. particle
dispersion in **nonaq**. medium for **polishing**
interlayer polymer film in **semiconductor** device)
IT Borates
Carbonates, uses
Perchlorates
Phosphates, uses
Silicates, uses
Sulfates, uses
(metal, particles; slurry of water-sol. particle dispersion in
nonaq. medium for **polishing** interlayer polymer
film in **semiconductor** device)
IT Polysiloxanes, miscellaneous
Polysiloxanes, miscellaneous
(polycarbonate-, elec. insulator, interlayer film; slurry of
water-sol. particle dispersion in **nonaq**. medium for
polishing interlayer polymer film in
semiconductor device)
IT Polycarbonates, miscellaneous
Polycarbonates, miscellaneous
(polysiloxane-, elec. insulator, interlayer film; slurry of
water-sol. particle dispersion in **nonaq**. medium for
polishing interlayer polymer film in
semiconductor device)
IT Electric insulators
Polishing
Semiconductor devices
Slurries
(slurry of water-sol. particle dispersion in **nonaq**.
medium for **polishing** interlayer polymer film in
semiconductor device)
IT 9002-84-0, PTFE
(elec. insulator, interlayer film; slurry of water-sol. particle
dispersion in **nonaq**. medium for **polishing**
interlayer polymer film in **semiconductor** device)
IT 67-56-1, Methanol, uses 67-63-0, Isopropyl alcohol, uses
(medium; slurry of water-sol. particle dispersion in
nonaq. medium for **polishing** interlayer polymer

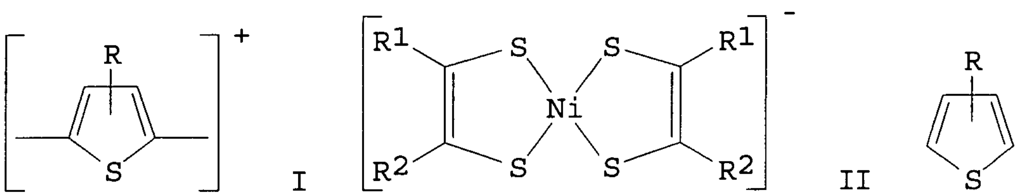
film in **semiconductor** device)

IT 471-34-1, Calcium carbonate, uses 10043-01-3, Aluminum sulfate (particles; slurry of water-sol. particle dispersion in **nonaq**. medium for **polishing** interlayer polymer film in **semiconductor** device)

L57 ANSWER 5 OF 10 HCA COPYRIGHT 2003 ACS

116:49021 Optical recording media, and manufacture method. Komori, Tetsuo (Dainippon Printing Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 03208689 A2 19910911 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-5466 19900112.

GI



I II III

AB The recording layer of the media consists of polythiophenes I (R = alkyl) doped with dithiolatonickel complexes II (R1-2 = alkyl, cyano, alkoxyaryl). The manuf. method involves electrolytic polymn. of **nonaq**. electrolyte contg. thiophenes III and complexes II. The layer absorbs in wavelength range of **semiconductor** laser (750-950 nm), has **smooth** surface, is stable, and is prepd. by simple and well-controlled procedure. Thus, a soln. of 2.1 g 3-nonylthiophene and 0.535 g bis(1,2-dicyano ethylene-1,2-dithiolato)nickel in 60 mL MeCN was electrolyzed and polymer was deposited on In/Sn oxide electrode, to form a dark brown layer with cond. 10-3-10-1 S/cm absorbing in 860-nm region.

IC ICM B41M005-26
ICS G11B007-24; G11B007-26

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST optical recording **disk** doped polythiophene; nickel complex doped recording layer

L57 ANSWER 6 OF 10 HCA COPYRIGHT 2003 ACS

111:49597 Infrared-compatible deposition surface for effluents from liquid chromatographs. Biemann, Klaus; Gagel, John J. (Massachusetts Institute of Technology, USA). U.S. US 4823009 A 19890418, 17 pp. Cont.-in-part of U.S. Ser. No. 877,242. (English). CODEN: USXXAM. APPLICATION: US 1987-87427 19870820. PRIORITY: US 1986-851445 19860414; US 1986-877242 19860623.

AB Effluent from a liq. chromatograph (LC) is deposited onto a deposition medium having a deposition surface inert to the LC effluent elevated above and parallel to a **planar** IR reflective front surface, preferably driven so as to define a

continuous sample track in a generally circular, spiral or raster pattern. In the preferred embodiment, the deposition medium is a plate of Ge inert to aq. and **nonaq**. solvents, thicker than the longest IR wavelength of interest and having an undercoating. of Al. Effluent is preferably deposited in a spiral pattern on the deposition medium in the form of a rotating **disk**. After collection, the reflection spectra can be interrogated by Fourier transform IR spectroscopy. The same collection technique can be used to collect and mount samples for mass spectrometry. To promote solvent evapn., the effluent discharge is enveloped by a stream of heated N, particularly beneficial for reversed-phase chromatog. By varying the temp. of the stream as a function of the proportions of solvents of differing volatility, the compatibility of gradient elution with surface deposition techniques is improved.

IC ICM G01N021-01
ICS G01N001-28; G01N001-10
NCL 250341000
CC 79-2 (Inorganic Analytical Chemistry)
IT **Semiconductor** materials
(IR-compatible deposition surface contg., for effluents from liq. chromatographs)

L57 ANSWER 7 OF 10 HCA COPYRIGHT 2003 ACS
103:96406 Positive photoresists containing preformed polyglutarimide polymer. Gleim, Robert D.; DeGrandpre, Mark P. (Rohm and Haas Co., USA). U.S. US 4524121 A 19850618, 12 pp. (English). CODEN: USXXAM. APPLICATION: US 1983-553221 19831121.

AB A photoresist system which provides pos. images, has high degree of thermal stability and is also suitable as a **planarizing** layer in a multilayer resist contains a partially aq. sol. imidized acrylic polymer (polyglutarimide) dissolved in a **non** -reactive **non-aq**. solvent. Thus, a soln. contg. 10 wt.% of polyglutarimide which contained 58 mol% NH3-derived N-H glutarimide units and 42 mol% amine-derived N-Me glutarimide units (obtained by reacting PMMA with NH3 at 560.degree.) in a solvent mixt. consisting of chlorobenzene and methoxyethanol (66/33 wt. ratio) and contg. 4',2',3'-trihydroxybenzophenone ester of 1-oxodiazonaphthalene-5-sulfonic acid as a sensitizer was coated on a Si oxide-contg. **Si wafer** (primed with hexamethyl disilazane), prebaked, imagewise exposed to UV, developed in an aq. base developer, rinsed with H2O and dried to give an image with excellent adhesion and resoln.

IC ICM G03C001-54
ICS G03C001-68; G03C005-00
NCL 430176000
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT Resists
(photo-, multilayer, imidized acrylic polymer for application as **planarizing** layer in)
IT Resists
(photo-, pos.-working, imidized acrylic polymer dissolved in

nonreactive **non-aq**. solvent as, for high
thermal stability)
IT 7664-41-7D, reaction products with poly(Me methacrylate)
9011-14-7D, reaction product with ammonia
(photoresist system providing pos. images contg. **non**
-reactive **non-aq**. solvent and, thermal
stability of)
IT 75578-78-8 97900-86-2
(sensitizer, for photoresist system consisting of imidized
acrylic polymer and **non**-reactive **non-**
aq. solvent, formation of pos. thermally stable images
by)

L57 ANSWER 8 OF 10 HCA COPYRIGHT 2003 ACS
96:76388 Photoelectrochemical studies of a molybdenum disulfide (MoS_2)
electrode by the rotating ring-**disk** electrode technique.
Fujishima, Akira; Noguchi, Yoshikazu; Honda, Kenichi; Loo, Boon H.
(Fac. Eng., Univ. Tokyo, Tokyo, 113, Japan). Bulletin of the
Chemical Society of Japan, 55(1), 17-22 (English) 1982. CODEN:
BCSJA8. ISSN: 0009-2673.
AB Photoelectrochem. processes at both n- and p-type MoS_2 electrodes
were studied by rotating ring-**disk** electrode technique.
In comparison with other **semiconductor** photoelectrodes,
such as CdS, ZnO, and TiO_2, the competitive oxidns. of various
reducing agents at the n-MoS_2 electrode were not clearly dependent
on their redox potentials. The MoS_2 photoanode was particularly
stabilized in I^- solns., and this result was attributed to the
specific adsorption of I^- on the electrode surface. Two-step waves
were obsd. in the photocurrent-potential curves of the MoS_2
photoanode in I^- solns. The 1st wave was controlled by the
diffusion of I^- from the bulk soln. to the electrode surface, and
the 2nd wave at a more anodic potential was dependent on the
formation of the photogenerated holes.
CC 72-2 (Electrochemistry)
Section cross-reference(s): 66, 74, 76
IT Electric potential
(**flat** band, of molybdenum sulfide in sodium sulfate
solns.)
IT Photoconductivity and Photoconduction
(of molybdenum sulfide electrode, in aq. and **nonaq**.
solns., effect of additives on)
IT 7757-82-6, properties
(elec. **flat** band potential of molybdenum sulfide in
soln. of)
IT 1317-33-5, uses and miscellaneous
(electrodes, photoelectrochem. n- and p-type, rotating ring-
disk electrode technique in study of)

L57 ANSWER 9 OF 10 HCA COPYRIGHT 2003 ACS
91:114496 Metallic reducing additive for solid cathodes used in
nonaqueous batteries. Kronenberg, Marvin Lee (Union Carbide
Corp., USA). Ger. Offen. DE 2848962 19790531, 24 pp. (German).

CODEN: GWXXBX. APPLICATION: DE 1978-2848962 19781111.

AB In a **nonaq**. battery for **transistorized** devices, the cathode contains a larger amt. of graphite and/or C and a smaller amt. of a metallic reducing agent (incorporated throughout the cathode) which is sufficient to reduce any materials in the battery which are more cathodic than the active cathode material, and of course with respect to the anode. The metallic reducing agent is a discrete material which is in elec. and ionic contact with the cathode and is selected from Zn (preferably), V, Mn, Cr, Fe, Cd, In, Sn, Pb, Zr, Ti, Li, Na, K, Mg, Al, and Ca. The active cathode material is chosen from CFx, V2O5, WO3, MoO3, Pb oxide, Co oxide, MnO2, Cu oxide, CuS, CoS2, In sulfide, Fe sulfide, NiS, Ag2CrO4, Ag3PO4, and CuSO4. The anode is chosen from Li, Na, K, Ca, Mg and their alloys. The electrolyte is an org. solvent or mixt. of org. solvents. For example, a **planar** battery, with a metal cap for closure, contains a **disk**-shaped Li anode, an FeS2 cathode and electrolyte of LiCF3SO3 soln. in dioxolane 40, dimethoxyethane 30, and 3-methyl-2-oxazolidone 30% with a trace of dimethylisoxazole. The cathode collector consists of a Ni grid and the separator of nonwoven polypropylene. In the case of a drain of 1.2 mA, the battery showed a voltage of 1.8 V. Within 15 min, the outlet voltage fell to .apprx.1.4 V and stayed there upon further discharge. The addn. of Zn powder (as reducing agent) and C black to the FeS2 improved the qualities of the battery.

IC H01M004-62; H01M004-58; H01M006-16

CC 72-2 (Electrochemistry)

IT Carbon black, uses and miscellaneous
(in primary **nonaq**. battery with metal reducing additive)

IT Reducing agents
(metals, for cathodes in primary **nonaq**. batteries)

IT Batteries, primary
(**nonaq**., for **transistorized** devices, metallic reducing additive for use in)

IT Cathodes
(battery, metal reducing additives for, in **nonaq**. electrolytes)

IT 7439-93-2, uses and miscellaneous
(anode, for **nonaq**. battery)

IT 9002-84-0
(binder, in primary **nonaq**. battery)

IT 7440-02-0, uses and miscellaneous
(cathode collector, for primary **nonaq**. battery)

IT 1317-38-0, uses and miscellaneous
(cathode, for primary **nonaq**. battery)

IT 12068-85-8
(cathode, with metal reducing additive, for **nonaq**. battery)

IT 110-71-4 300-87-8 646-06-0 19836-78-3
(in primary **nonaq**. battery)

IT 7440-44-0, uses and miscellaneous 7782-42-5, uses and miscellaneous

(in primary **nonaq**. battery, with metal reducing additive)

IT 7439-89-6, uses and miscellaneous 7440-31-5, uses and miscellaneous
(reducing additive, for primary **nonaq**. battery)

IT 7440-66-6, uses and miscellaneous
(reducing agent, for solid cathode in primary **nonaq**. battery)

IT 9003-07-0
(separator, for primary **nonaq**. battery)

IT 12597-69-2, uses and miscellaneous
(wool, in primary **nonaq**. battery)

L57 ANSWER 10 OF 10 HCA COPYRIGHT 2003 ACS

7 89:69540 Chemical pretreatment and electrical behavior of **silicon surfaces**. Vieweg-Gutberlet, F. G.; Siegesleitner, P. F. (Mater. Charact. Sect., Wacker-Chemitronic G.m.b.H., Burghausen, Fed. Rep. Ger.). Proceedings - Electrochemical Society, 77-2(Semicond. Silicon), 387-92 (English) 1977. CODEN: PESODO. ISSN: 0161-6374.

AB Chem. pretreatment of p-type **Si wafers** prior to elec. measurements often results in unreliable readings of resistivity or carrier concn. For some treatments such as HF or alk. slurry **polish**, a thin layer of neg. ions is formed on the **Si surface**, trapping holes from the bulk of the sample. **Polishing** in a **nonaq**. environment, e.g., in an environment of diamond suspended in oil, avoids surface effects resulting in unreliable readings.

IT **7440-21-3**, properties
(surfaces, elec. properties of, chem. pretreatment in relation to)

RN 7440-21-3 HCA

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

CC 76-13 (Electric Phenomena)

ST **silicon surface** chem pretreatment; treatment **silicon surface**

IT Electric property
(of **silicon surfaces**, chem. pretreatment in relation to)

IT **7440-21-3**, properties
(surfaces, elec. properties of, chem. pretreatment in relation to)

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L58 ANSWER 1 OF 11 HCA COPYRIGHT 2003 ACS

TI Method to restore hydrophobicity in dielectric films and materials

L58 ANSWER 2 OF 11 HCA COPYRIGHT 2003 ACS
TI Dynamic mechanical analysis (**DMA**) of **CMP** pad materials

L58 ANSWER 3 OF 11 HCA COPYRIGHT 2003 ACS
TI Composition containing crosslinkable matrix precursor and poragen and porous matrix prepared therefrom

L58 ANSWER 4 OF 11 HCA COPYRIGHT 2003 ACS
TI Synthesis of Polystyrene Brushes on Silicate Substrates via Carbocationic Polymerization from Self-Assembled Monolayers

L58 ANSWER 5 OF 11 HCA COPYRIGHT 2003 ACS
TI Monodisperse aerosol particle deposition: prospects for nanoelectronics

L58 ANSWER 6 OF 11 HCA COPYRIGHT 2003 ACS
TI Ring-modified carbon fiber microelectrodes and multi-microelectrode devices

L58 ANSWER 7 OF 11 HCA COPYRIGHT 2003 ACS
TI Thermally stable, low dielectric polyquinolines for aerospace and electronics applications

L58 ANSWER 8 OF 11 HCA COPYRIGHT 2003 ACS
TI Relationship of hemolysis buffer structure, pH and ionic strength to spontaneous contour **smoothing** of isolated erythrocyte membranes

L58 ANSWER 9 OF 11 HCA COPYRIGHT 2003 ACS
TI Heat-resistant adhesives

L58 ANSWER 10 OF 11 HCA COPYRIGHT 2003 ACS
TI Fire-resistant polyester resin compositions

L58 ANSWER 11 OF 11 HCA COPYRIGHT 2003 ACS
TI Polycarboxylic aromatic imide enamels

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L58 ANSWER 2 OF 11 HCA COPYRIGHT 2003 ACS
135:130192 Dynamic mechanical analysis (**DMA**) of **CMP** pad materials. Li, Irene; Forsthoefel, Kersten M.; Richardson, Kathleen A.; Obeng, Yaw S.; Easter, William G.; Maury, Alvaro (School of Optics/CREOL, Department of Chemistry, University of Central Florida, Orlando, FL, 32816, USA). Materials Research Society Symposium Proceedings, 613(Chemical-Mechanical Polishing 2000: Fundamentals and Materials Issues), E7.3.1-E7.3.10 (English) 2001. CODEN: MRSPDH. ISSN: 0272-9172. Publisher: Materials Research Society.

AB In the **semiconductor** industry, there is a need to establish fundamental, mechanism-based, correlation(s) between process conditions, consumables (e.g., pads and slurries), and obsd. process performance in Chem.-Mech. **Polishing** (**CMP**). The authors present recent results of studies on polyurethane-based **CMP** pads in static and dynamic conditions using Dynamic Mech. Anal. (**DMA**) to monitor modulus and energy damping changes. Two-layered, composite IC1000 on Suba IV pads, [IC1000 (cast and cured polyurethane elastomer) / Suba IV (polyurethane impregnated polyester felt)], were analyzed: prior to use (fresh); after a 24-h soak in silica-contg. oxide slurry (basic); and after oxide **polishing** (used). Upon comparison a characteristic transition feature due to water is present at subambient temps. in both the slurry soaked and used pads. Exposure of as-received pads to basic oxide slurry results in a broad, high temp. transition thought to be the result of chem.-induced disruption of macrostructural units. **Polishing** (load-enhanced chem. exposure) introduces further changes to the polymer network represented by an apparent degrdn. to the structural species responsible for the high temp. transition in Suba IV.

CC 76-3 (Electric Phenomena)
Section cross-reference(s): 47, 48

ST **semiconductor** chem mech **polishing** pad dynamic analysis

IT **Polishing**
(chem.-mech.; dynamic mech. anal. of **CMP** pad materials for **semiconductor** processing)

IT Composites
Semiconductor device fabrication
Slurries
(dynamic mech. anal. of **CMP** pad materials for **semiconductor** processing)

IT Oxides (inorganic), uses
Polyesters, uses
Polymers, uses
Polyurethanes, uses
(dynamic mech. anal. of **CMP** pad materials for **semiconductor** processing)

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L60 ANSWER 1 OF 4 HCA COPYRIGHT 2003 ACS
135:156634 **Polishing pad** composition for

polishing of **semiconductor wafers**.
Hasegawa, Toru; Ogawa, Toshihiro; Kurihara, Fumio (JSR Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001214154 A2 20010807, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-333460 20001031. PRIORITY: JP 1999-334688 19991125.

AB The compns. contain an aq. substance and abrasives in a **non -aq**. substance. Preferably, at least part of the abrasives are dispersed in the aq. substance, and the abrasives have an. size 0.01-100 .mu.m.

IC ICM C09K003-14
ICS C09K003-14; B24B037-00; B24D011-00; C08K003-00; C08L101-00; H01L021-304

CC 57-7 (Ceramics)
Section cross-reference(s): 76

ST **polishing pad** compn **semiconductor wafer**; aq substance abrasive **polishing pad**

IT Polyesters, uses
(elastomer; in **polishing pad** compn. for **polishing** of **semiconductor wafers**)

IT Polyurethanes, uses
(in **polishing pad** compn. for **polishing** of **semiconductor wafers**)

IT **Polishing** materials
Semiconductor materials
(**polishing pad** compn. for **polishing** of **semiconductor wafers**)

IT 1306-38-3, Cerium oxide, uses 1313-13-9, Manganese dioxide, uses
(abrasive; in **polishing pad** compn. for **polishing** of **semiconductor wafers**)

IT 9002-89-5, Polyvinyl alcohol 12619-70-4, Cyclodextrin
(aq. substance; in **polishing pad** compn. for **polishing** of **semiconductor wafers**)

IT 9003-17-2, polybutadiene 9003-56-9, ABS resin
(in **polishing pad** compn. for **polishing** of **semiconductor wafers**)

L60 ANSWER 2 OF 4 HCA COPYRIGHT 2003 ACS

132:123755 Thermoplastic resin compositions and abrasive **pads** thereof. Hasegawa, Akira; Nakanishi, Hideo; Kobayashi, Yutaka; Kawamura, Tomoo; Ogawa, Toshihiro (JSR Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000034416 A2 20000202, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-126842 19990507. PRIORITY: JP 1998-133527 19980515.

AB The abrasive **pads**, esp. suitable for **polishing semiconductor wafer** surfaces, comprise compns. composed of **nonwater**-sol. thermoplastic resins with Shore D hardness .gtoreq.35% and contg. 5-60 vol.% water-sol. substances with av. particle diam. 0.1-500 .mu.m. Thus, a compn. contg. 80 vol.% ethylene-vinyl alc. copolymer (Eval G 110) and 20 vol.% PVA (Poval CP 1000) was molded and pressed to give sheets having Shore D hardness 86, av. particle diam. of PVA 2 .mu.m, **Si wafer polishing** speed 0.6 .mu.m/min, and good

smoothness of the **polished wafer**.

IC ICM C08L101-00
ICS B24B037-00; C08J005-14; C08K003-24

CC 38-3 (Plastics Fabrication and Uses)

ST **semiconductor wafer polishing**
polymeric abrasive **pad**; water sol thermoplastic abrasive **pad**; ethylene vinyl alc copolymer abrasive **pad**;
PVA EVA abrasive **pad wafer polishing**

IT Urethane rubber, uses
(Elastollan E 690-50; water-insol. thermoplastic resin compns. contg. water-sol. polymers for abrasive **pads**)

IT Abrasives
(water-insol. thermoplastic resin compns. contg. water-sol. polymers for abrasive **pads**)

IT Linear low density polyethylenes
(water-insol. thermoplastic resin compns. contg. water-sol. polymers for abrasive **pads**)

IT Polymer blends
(water-insol. thermoplastic resin compns. contg. water-sol. polymers for abrasive **pads**)

IT 9003-07-0, Polypropylene
(Novatec PP-MA 1; water-insol. thermoplastic resin compns. contg. water-sol. polymers for abrasive **pads**)

IT 9003-54-7, Acrylonitrile-styrene copolymer
(Techno AS 270NP; water-insol. thermoplastic resin compns. contg. water-sol. polymers for abrasive **pads**)

IT 74-85-1, Ethene, uses 7585-39-9, Ringdex B 9002-88-4, Novatec LD-YF 30 9004-64-2, HPC-L 9011-14-7, Sumipex LG 6 25067-34-9, Eval G 110 129406-63-9, Novarex 7020A 196004-30-5, Poval CP 1000 256346-09-5, Aqua Keep 10SH-NF20
(water-insol. thermoplastic resin compns. contg. water-sol. polymers for abrasive **pads**)

L60 ANSWER 3 OF 4 HCA COPYRIGHT 2003 ACS

128:251486 Removing residue from a **semiconductor wafer** bonding **pad**. Peng, Tzu-min; Liaw, Yung-haw; Chu, Cheng-te; Huang, Hsin-chieh (Taiwan Semiconductor Manufacturing Co., Ltd., Taiwan). U.S. US 5731243 A 19980324, 9 pp. (English). CODEN: USXXAM. APPLICATION: US 1995-523775 19950905.

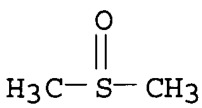
AB A method for backside **grinding** a **semiconductor wafer** and forming a contamination-free bonding **pad** connection comprises forming a passivation layer over a metal layer. A photoresist pattern is applied with an opening which defines a bonding **pad** area and the passivation layer exposed in the opening is removed. Next, the photoresist is removed, but a polymer residue is often formed on the surfaces of the passivation layer surrounding the bonding **pad**. In a novel step, the residue is removed using an etchant contg. **DMSO** and monoethanolamine and is followed by an O plasma treatment. Next, the device side of the **wafer** is covered with a protective tape and the backside of the **wafer** is ground back. The tape is removed, revealing a contamination-free bonding **pad**

area. A bonding connection is then made to the bonding **pad**
.

IT 67-68-5, **DMSO**, processes
(etching by; in removing residue from a **semiconductor** **wafer** bonding **pad**)

RN 67-68-5 HCA

CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



IC ICM H01L021-28
ICS H01L021-304; H01L021-3065

NCL 438612000

CC 76-3 (Electric Phenomena)

ST residue removal **semiconductor** **wafer** bonding **pad**

IT Electric contacts
(bond **pads**; removing residue from a **semiconductor** **wafer** bonding **pad**)

IT Etching
Grinding (machining)
(in removing residue from a **semiconductor** **wafer** bonding **pad**)

IT Plasma
(oxygen; in removing residue from a **semiconductor** **wafer** bonding **pad**)

IT Contamination (electronics)
(removing residue from a **semiconductor** **wafer** bonding **pad**)

IT Polymers, processes
(removing residue from a **semiconductor** **wafer** bonding **pad**)

IT Photoresists
(removing residue from a **semiconductor** **wafer** bonding **pad** after removal of)

IT **Semiconductor** device fabrication
(removing residue from a **semiconductor** **wafer** bonding **pad** in)

IT **67-68-5**, **DMSO**, processes 141-43-5, Monoethanolamine, processes
(etching by; in removing residue from a **semiconductor** **wafer** bonding **pad**)

IT 7631-86-9, Silica, processes 12033-89-5, Silicon nitride (Si_3N_4), processes
(passivation layer; in removing residue from a **semiconductor** **wafer** bonding **pad**)

IT 7782-44-7, Oxygen, processes
(plasma; in removing residue from a **semiconductor** **wafer** bonding **pad**)

L60 ANSWER 4 OF 4 HCA COPYRIGHT 2003 ACS
117:58673 Alternative method for stripping dry film photoresists. Anon. (UK). Research Disclosure, 338, 484 (English) 1992. CODEN: RSDSBB. ISSN: 0374-4353.

AB Laminated dry film photoresists are used to define conductor patterns, plating terminal contact **pads** and joining metallurgies on microelectronic device and packaging applications. One of the problems assocd. with this class of resists is the need to use stripping solns. which have high pH and tend to attack the plated metal patterns and the back side of **silicon wafers**. An alternate stripping methodol. that utilizes a **non-aq**. medium to strip these resists is disclosed. The method uses alcs. (methanol, ethanol, isopropanol, etc.) at temps. slightly above room temp. These solvents get absorbed in the resist, swell it and delaminate it from the substrate, leaving virtually no residues. Their efficacy can be enhanced with higher temp./pressure operation and spraying. These solvents are innocuous to the commonly used metallurgies, as well as the back **surface** of the **silicon wafer** and are free of ionic contaminants. All the problems assocd. with the conventional alk. aq. dry film stripping solns. are eliminated without any increase in process complexity.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)